Rapid rural appraisal, participatory rural appraisal and aquaculture

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PREPARATION OF THIS DOCUMENT

The Fishery Resources Division of the FAO Fisheries Department regularly publishes technical documentation relevant for the promotion of sustainable fisheries and aquaculture development. This document has been prepared in response to increasing interest and enquiries from people working in aquaculture regarding Rapid Rural Appraisal and Participatory Rural Appraisal. The document is intended for both field workers and planners involved in aquaculture development, whether in inland or coastal areas. Comments and suggestions would be appreciated and should be sent to the Fishery Resources Officer (Aquatic Environment), Inland Water Resources and Aquaculture Service (FIRI), Fisheries Department, FAO, Rome.

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ABSTRACT

This document is intended for aquaculture development specialists, aquaculture project managers, and officials and specialists involved in the planning and management of aquaculture activities. It is intended to provide an introduction to Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) for people working in these fields. The principal components of these two approaches to information collection and planning are described along with the various tools used with a case study to illustrate their use and some of the issues they raise. Possible applications of the approaches for those involved in aquaculture development are given and an outline provided of the sorts of planning and institutional context where they can best be applied. The problems and shortcomings of the approaches are also discussed and guidelines given for the use of alternative approaches to information gathering and planning.

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1. INTRODUCTION

SUMMARY

People involved in planning development work, including aquaculture, require a wide range of information. RRA and PRA were developed, at least initially, as tools to help development workers collect certain types of information more effectively. They should be regarded as one of a range of possible approaches to information collection and planning.

People working in development, whatever their field, need information in order to plan what they do. Besides the information which people can get from their technical background and training, and their experience, they also **should** have information about the areas where they are working, local conditions, the culture, social and economic circumstances of the people who are being affected by what they do.

Aquaculture workers are no exception. People planning aquaculture development have always required certain basic information about the environment in which they are working and the various physical factors which are likely to affect aquaculture activities. More and more aquaculture workers are now realising the importance of understanding the social, economic and cultural context of whatever projects or interventions they are involved in.

Obviously the type of information needed depends on the activities which aquaculture planners have in mind. For example, if you are planning a small-scale pilot project to demonstrate a particular aquaculture technique the sort of information you need is going to be very different from what you would require if you were organising a large-scale programme to introduce commercial fish farming on a regional level.

But the basic questions which aquaculture workers (like all development workers) have traditionally asked themselves when they are deciding on their information needs have tended to be the same in most situations :

- what information is already available ?
- what **don't** we know about the area where aquaculture is being planned or the target group it is being planned for?
- how can I go about finding out what I don't know ?
- how much is it going to cost ?
- how long is it going to take ?

Different organisations have, in the past, tended to respond to these questions in different ways. All too often, factors such as the number of people available for work, limits on the time available for collecting information and planning and a shortage of basic inputs like money and transport, dictate the way in which people

answer these questions. Collecting information in the field can be costly and time-consuming

But even where resources and time have been available, the range of possibilities and tools which planners have had at their disposal to collect the information they need has been limited.

The case-study in Chapter 2 shows how one group of people working in aquaculture dealt with this problem using Rapid Rural Appraisal (RRA), a **relatively** new approach which provides planners in all fields of development, including aquaculture, with an alternative tool for collecting the information they need to plan their activities.

Rapid Rural Appraisal or RRA (and **Participatory** Rural Appraisal or PRA develops certain aspects of RRA but is quite different in emphasis) **can** also be much more than just "a tool for collecting information". These "extra" dimensions to RRA and PRA are to do with the extent to which local people play the leading role in collecting and analysing information and how these more participatory approaches to learning in the field lead on to a process of participatory, "bottom-up" planning.

Many people working with RRA, and particularly PRA, would regard these "extra" dimensions as being by far the most important elements in RRA and PRA approaches. Certainly, using participatory tools for information collection and planning can have very wide-ranging implications for the whole development process and these implications will be discussed at greater length in the following chapters. But for many people involved in development work, their first encounter with RRA and PRA is a means of collecting information more quickly and more effectively and using it for planning development. So this aspect of the approach has been taken as the starting point.

It also needs to be understood that RRA is just "a tool". It is not a solution to all the problems and issues encountered in development. It is not even a solution to all the problems of information collection for development. It is simply an alternative approach which, in some circumstances, can usefully be applied.

In the following chapters, the relevance of RRA and PRA for workers in a specific technical field, aquaculture, will be described. This will include a review of what RRA and PRA are, how they could be used by professionals working in aquaculture and the circumstances in which they are applicable. But first of all, those who are not familiar with RRA may find it easier to get a general picture of what it is by looking at the case study in Chapter 2.

2. RRA FOR SMALL WATER BODY DEVELOPMENT IN SOUTHERN AFRICA : A CASE STUDY

SUMMARY

RRA was used by a regional aquaculture programme in Southern Africa to investigate the potential for the enhancement of fisheries on small water bodies. The techniques used are described and some of the results obtained and problems encountered discussed.

2.1 ALCOM and small water bodies in Southern Africa

The Aquaculture for Local Community Development Programme (ALCOM) is a regional aquaculture programme of the FAO which has been working in 9 countries in Southern Africa since 1986. It objectives are to develop aquaculture technologies and aquaculture development and extension approaches appropriate for poor rural communities in the region. One of the activities which ALCOM was asked by its participating countries to work on was the development of fisheries in "small water bodies".

The term "small water bodies" covers a wide range of areas of water of different sizes, environments and uses including irrigation, livestock watering, household water supply, power generation and, in some cases, fisheries.

To address the issues of fisheries development in these small water bodies, ALCOM first of all had to find out more about this range of uses and where fisheries fitted into local people's exploitation of these water bodies. From past experience, ALCOM understood that fisheries in many rural communities in the region was generally only one of a variety of livelihood strategies employed by rural households. Aquaculture development and fisheries enhancement in the past had often been promoted by fisheries planners without a proper understanding of how it would fit into existing rural systems. ALCOM was anxious to avoid similar mistakes in trying to identify avenues for development of small water bodies

So the first phase of the activity was to try to achieve a better understanding of how local people currently used these water bodies, how important fisheries was currently, what the potential for expansion might be, and how fisheries development would fit in with the other multiple uses of these water bodies.

2.2 Why RRA ?

ALCOM already had considerable experience with studies like this - much of the first phase of the programme had consisted of studies on aquaculture and inland fisheries in Southern Africa and their place in rural systems. Several structured, questionnaire-type surveys had been carried out generating considerable quantities of data and much valuable information.

But some of the drawbacks of these types of formal surveys had also become apparent. They were time-consuming , expensive and prone to biases. An evaluation of a pilot survey (Wikstrom and Aase, 1988) carried out in Zambia showed how outsiders' preconceptions about aquaculture (for instance that pond harvesting is periodic as opposed to continuous) could lead to serious problems in questionnaire design. Surveys almost always seemed to generate much more data than was really needed and often not all the data produced would be used. There was also a general feeling among both participating countries and donors that preliminary studies were perhaps absorbing too much time and energy.

There was therefore a need to look for an approach to collecting information and identifying potential activities which would do the following :

- help ALCOM learn as much as possible, as quickly as possible, about the current uses and conditions of small water bodies in a range of locations in the region
- create room within the learning process for local people to express their priorities and needs
- avoid raising undue expectations regarding what the programme might be planning to do
- avoid the risk of a bias towards aquaculture and fisheries-related activities and end up giving them an unrealistic level of priority
- try to identify a series of viable activities relating to fisheries on small water bodies which responded to real needs and problems as expressed by local people.

Quite independent of this particular activity relating to small water bodies, ALCOM was already interested in the use of Rapid Rural Appraisal (RRA) as an alternative approach to initiating its development activities. RRA approaches had already been used by some workers on the programme to carry out participatory research. The decision to try to develop an RRA approach that could be used for investigating small water bodies was therefore logical.

It was hoped that a shorter, more flexible approach to collecting information could focus more effectively on what was really needed in order to plan an activity. The multi-disciplinary approach used in RRA seemed to make it an appropriate tool for looking at the multiple uses and users of small water bodies and for putting fisheries in its proper perspective. The semi-structured interview techniques which are the basic tool of RRA would hopefully allow local people to communicate their own priorities regarding the use of their water bodies, something that would be difficult to do in the context of a structured, questionnaire survey.

RRA clearly would **not** provide the sort of hard data which would give a precise quantitative picture of conditions in communities around the water bodies being looked at. But it was, in any case, unthinkable that such surveys could be carried out on a large enough sample of small water bodies to accommodate the variations which were known to exist between different locations. For those water bodies selected, RRA could provide a quantitative picture which was "good enough", at least in the short-term. **Qualitatively** it could probably provide a better picture as it would allow more attention

to be paid to historical processes, social dynamics and unexpected variations in conditions.

What's more, it could do this fairly quickly. If more detailed surveys were required (for example to provide baseline information for monitoring and evaluation) they could be carried out just on those water bodies which had already been identified as possible project sites using RRA. Their scope and coverage could be limited to those issues which really needed to be quantified as opposed to just collecting data for the sake of collecting data.

2.3 Trying out the RRA approach

These initial trial RRAs covered three small water bodies in Zimbabwe, taking about 7 weeks overall for preliminary training of an RRA team, workshops to initiate each RRA, field work in each of the three locations and reporting of the results. In addition, a manual on the training approaches used was produced shortly afterwards for use by other ALCOM staff in similar RRA activities in other participating countries in the region.

RRA Team-Formation
It was not possible to have the same participants for all three RRAs. However a core team of ALCOM staff, both international and national, were able to give some continuity to the activity.

The other key consideration when forming the teams for the RRAs was the need to avoid an undue bias towards fisheries, even though ALCOM's primary institutional interest was in fisheries development. To ensure that a balanced view of people's use of small water bodies would be obtained, a range of skills and disciplines were called upon both from within the programme and outside. An ecologist, an economist, a farming systems specialist, a nutritionist and a social anthropologist from ALCOM itself all took part as well as aquatic biologists and aquaculture specialists. From outside the programme, participants were drawn in from national-level aquaculture extension programmes and from a range of national, district and local-level agencies including agricultural extension, community development, youth development and political affairs. A specialist in institutional development from the NGO sector was also involved in one of the appraisals.

In practice, the inclusion of people from a range of institutional levels proved to be as important as the coverage of a range of technical disciplines. Local-level workers who took part in the appraisals were able to provide a very different point of view on local problems to that provided by national and international "experts", as well as providing crucial links with local people and an important fund of local experience and knowledge. Special attention was also paid to achieving a reasonable balance of women and men on the team as there was a strong awareness of the possibilities for gender bias. Obviously, basic questions of the personnel available and willing to participate also played a considerable role in team formation. Table 1 gives the disciplines and institutions represented in each of the three RRA teams.

Table 1
Disciplines, institutions and gender breakdown for RRA teams on 3 small water bodies in Zimbabwe

Chichewo Dam		Taru Dam		Mwenje Dam	
Disciplines	**Institutions**	**Disciplines**	**Institutions**	**Disciplines**	**Institutions**
Fisheries & Extension Specialists *(M x 2)*	National Fisheries Extension Programme	Agriculture Specialists *(M x 2)* *(F x 1)*	District Agricultural Extension Service	Agriculture Specialists *(M x 2)* *(F x 1)*	District Agricultural Extension Service
Agriculture Specialist *(M x 1)*	District Agricultural Extension Service	Community Development Specialist *(M x 1)*	District Political Affairs	Co-operatives Specialist *(F x 2)*	District Community Development Service
Co-operatives Specialist *(F x 1)*	District Community Development Service	Aquatic Biologist *(M x 1)*	ALCOM	Community Development Specialist *(F x 1)* *(M x 1)*	District Political Affairs
Community Development Specialist *(M x 1)*	District Political Affairs	Economist *(F x 1)*	ALCOM	Institutions Specialist *(M x 1)*	National NGO
Aquatic Biologist *(M x 1)*	ALCOM	Agronomist *(F x 1)*	ALCOM	Aquatic Biologist *(M x 1)*	ALCOM
Economist *(F x 1)*	ALCOM	RRA Specialist *(M x 1)*	ALCOM	Economist *(F x 1)*	ALCOM
Aquaculture Specialist *(M x 1)*	ALCOM			Agronomist *(F x 1)*	ALCOM
RRA Specialist *(M x 1)*	ALCOM			Nutritionist *(F x 1)*	ALCOM
				Ecologist *(F x 1)*	ALCOM
				Social-Anthropologist *(M x 1)*	ALCOM
Note :* ***F = female* ***M = male***				RRA Specialist *(M x 1)*	ALCOM

RRA Implementation
Potential locations for the RRA had been identified by ALCOM staff and some basic secondary data, such as maps and statistics, collected ahead of time for those locations. Also a range of potential participants had been identified and contacted.

Each of the three RRAs then followed basically the same pattern. The team participants, who ranged from 8 to 14 in number, were gathered together in a local meeting room where the best part of the first day was spent providing an introduction to RRA techniques.

Immediately following the review of RRA approaches and training in RRA techniques, the specific preparations for each RRA were made. Secondary data was reviewed, a provisional checklist of topics for discussion with local people was prepared, and possible techniques for approaching each topic discussed. A list of key informants was usually drawn up using the local knowledge of participants already familiar with the working area and the team was provisionally broken up into groups of 2 or 3 for the fieldwork.

This process usually took up some time on the second day of the RRA as well, but, by the afternoon of Day 2, the work in the field could usually begin. Field work generally continued for three to four days. Workshops were held each evening, and sometimes on an *ad hoc* basis in the field, to review findings as succinctly as possible and to review and update the checklists of issues to be addressed. The techniques being used would also be discussed and any other adjustments to the appraisal procedure which seemed appropriate. At these workshops, the working teams for the field would also be continually shuffled so that each team member would work with all the other team members at some stage during the RRA. Where specific technical issues needed to be investigated, participants with relevant disciplinary experience would be assigned to look at those issues.

For the last day of the appraisal a community meeting was held in each community to present the team's findings and discuss them with members of the community. For these meetings, relevant representatives of the local authorities or other agencies concerned with issues raised by the appraisal were also invited to participate.

Subsequently, the materials prepared by team members for presenting the team's findings in these community meetings were elaborated upon for use in the reports for each RRA which were ready within about two weeks of the end of the entire exercise.

2.4 RRA techniques

Semi-structured interviewing
The most important technique used during the course of most of these RRAs was the semi-structured interview. For these interviews, the issues and topics in the RRA checklist for each appraisal were split up among different interview teams and used as a guide during interviewing. There were no pre-set questions posed but the RRA teams were trained to use open questions regarding topics which were of interest. One person in each team did the talking to respondents while the other took notes.

Based on population statistics available, different interview teams were given different areas of the communities around each water body to cover and a very approximate number of households and individuals to contact and interview each day. During the repeated workshops carried out after each day's fieldwork, a progressively better idea of the stratification and the socio-economic or ethnic groupings in each community were developed and this was used to check on the coverage being obtained by interviews. Rough sketch maps of the area prepared with local people's help enabled the team to make sure that they were not "missing" any particular groups or settlements.

Interviews were carried out with a range of people in different situations. A few key older persons in each community were generally identified early on in each RRA and interviewed about historical changes in the area, the history of the water bodies being considered and the cultural, ethnographic and political background of the people living nearby.

In conjunction with these interviews, the RRA team made use of a range of "visualisation" techniques to assist in clarifying ideas during the course of discussions with local people. Information was "triangulated" as far as possible : in other words, for each topic or issue, at least three different interview teams talked to three different respondents or groups of respondents using three different techniques to discuss each issues. This process of "triangulation" permitted as reasonable degree of cross-checking of information obtained by the team about key issues.

Mapping

As a starting point for discussion with some individuals and groups of people in the villages, rough maps of the area around each water body were drawn up. These were usually prepared on the ground using whatever materials were at hand - sticks, stones, seeds and lines drawn in the dirt. Where possible, nearby hills were used as a means of obtaining a "bird's-eye view" from which local people could directly indicate particular features of the landscape and territory which were of importance to them.

The preparation of these maps served several purposes :

- to provide a physical focus for discussions, giving something concrete for people to refer to when talking about local conditions, changes in conditions or particular issues.

- to allow local people to illustrate **their** view of their environment and what was important in it for them

- to help the RRA team to supplement the limited information provided by existing maps and to get a better understanding of key local features - the distribution of settlements and population, local landmarks, different resource zones and the extent of the area affected by the water body in question

- to provide a basic sketch map for use during the rest of the RRA for filling in thematic information - catchment patterns, land use, historical changes in settlement and land use, forest cover, social and economic divisions among the local population.

One of these sketch maps is given in Figure 1. The map exercise in this particular case clarified for the RRA team the conflicts between official and actual land uses. The priority given to the communal irrigated vegetable garden, a community initiative, reflected the villager's priorities regarding the use of water from the dam.

Distance charts

Another form of mapping which proved to be of particular use in identifying stakeholders in small water body management was what the team called "distance charts". These identified, again using simple drawings usually on the ground, all the communities from which people came to use a particular water body, their relative distances and the use they made of it. Other water bodies in the surrounding area were also located and their condition noted, particularly whether they held water year round as this tended to be a prime factor influencing people's movements to other nearby dams.

Figure 2 shows one of these distance charts. The prime importance of this particular dam as a watering place for cattle, particularly during drought periods when many other nearby dams dried up, was highlighted by this chart. The range of stakeholders needing to be drawn into discussions of the dam's future therefore needed to be correspondingly enlarged.

Transects

Transect walks through the areas around the water bodies, in company with local people, were used to get a complete picture of the different zones and land use. Problems and issues were then discussed relating to specific zones as opposed to the area as a whole. For discussion, these were represented in a similar way to the maps, on the ground using *ad hoc* materials. Figures 3 and 4 give some examples of different types of transect diagramme developed with local people's help.

These transects assisted in concentrating discussions on specific zones and the activities carried out there and identifying some key problems which were of direct relevance to the potential for fisheries development on the dam. For example, in the area illustrated in Figure 3, the transect diagrammes brought out the general scarcity of cow dung for fertiliser for agriculture. Given that addition of nutrients to the dam was one of the main technical options available for fisheries enhancement, this had important implications.

Ranking

Different forms of ranking exercise also provided a useful focus to interviews with local people. Different crops, types of food, fish species, land uses and water uses were ranking according to a variety of criteria suggested by local people themselves. The ranking could be carried out again using simple visualisation techniques on the ground or floor, depending on the location of the interview. Usually some form of grid would be drawn up with the items being ranked down one side, clearly identified using symbols of some kind, and the criteria for ranking along the other axis, again using symbols of

FIGURE 1
SKETCH MAP of AREA
around CHICHEWO DAM, ZIMBABWE (1991)

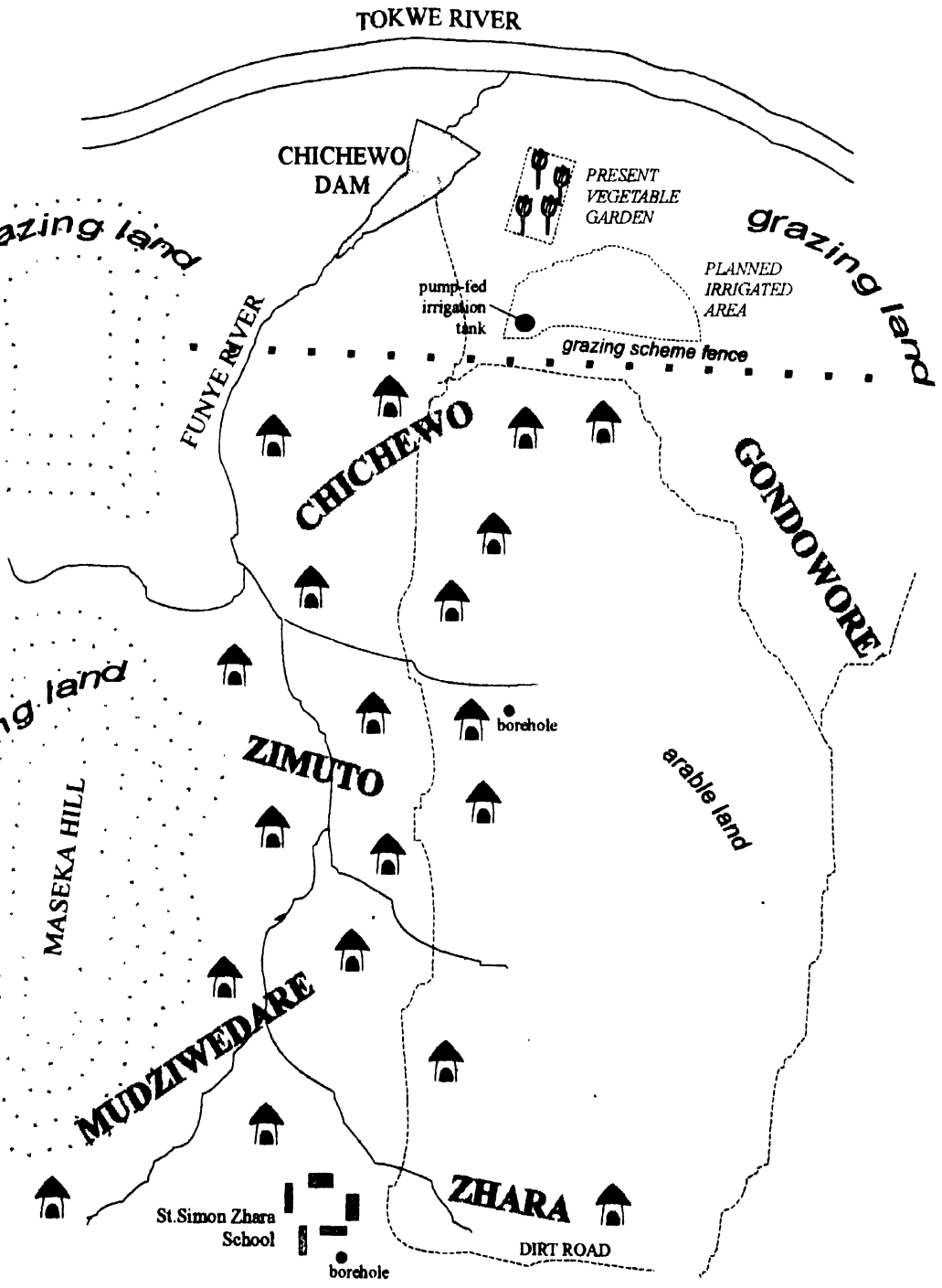
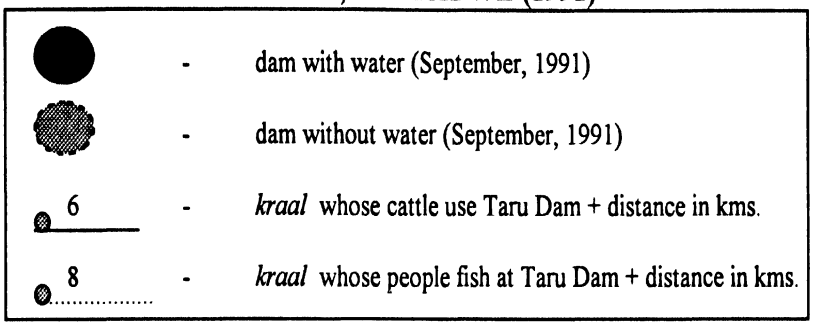


FIGURE 2
DISTANCE CHART of COMMUNITIES utilising TARU DAM, ZIMBABWE (1991)



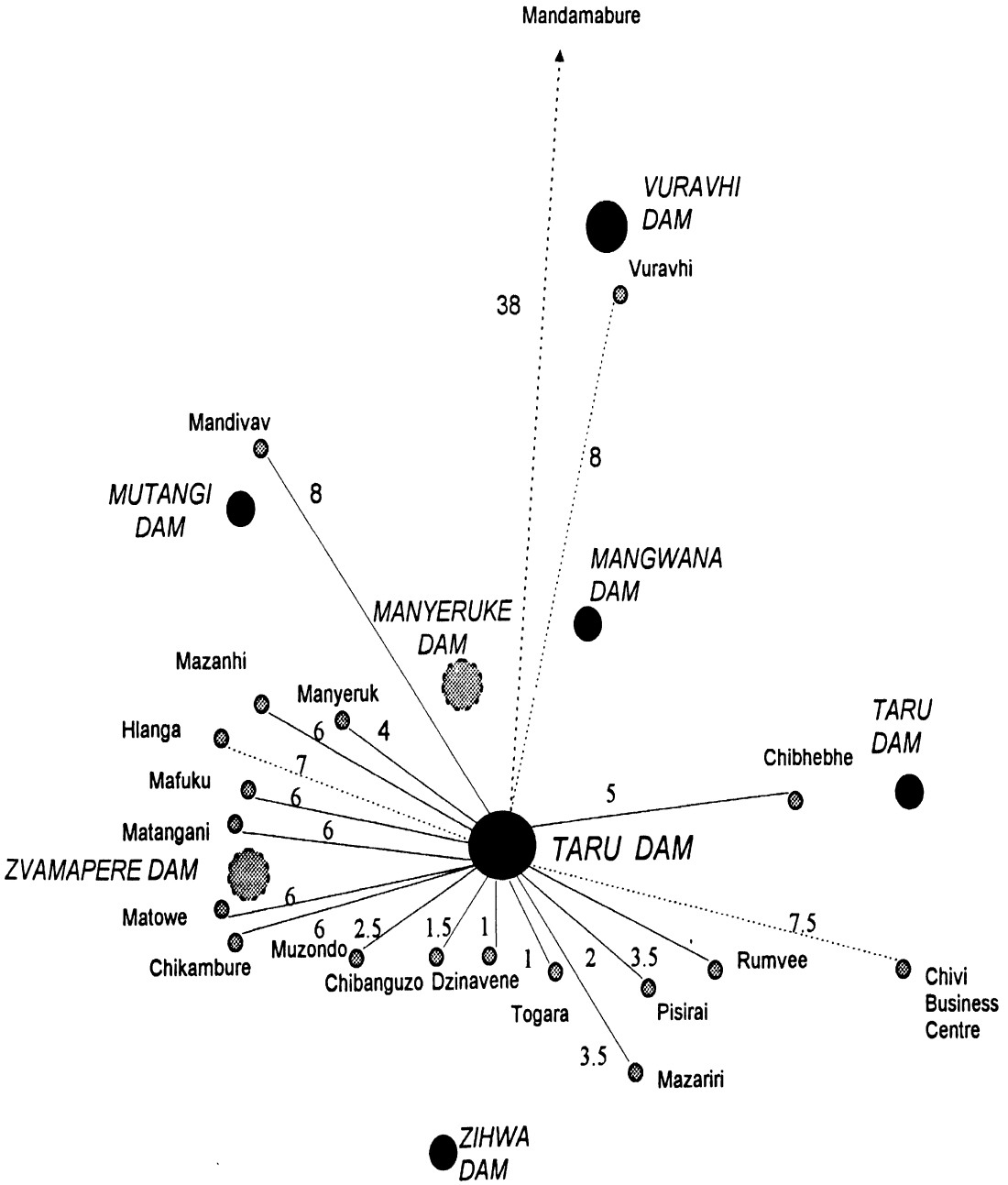
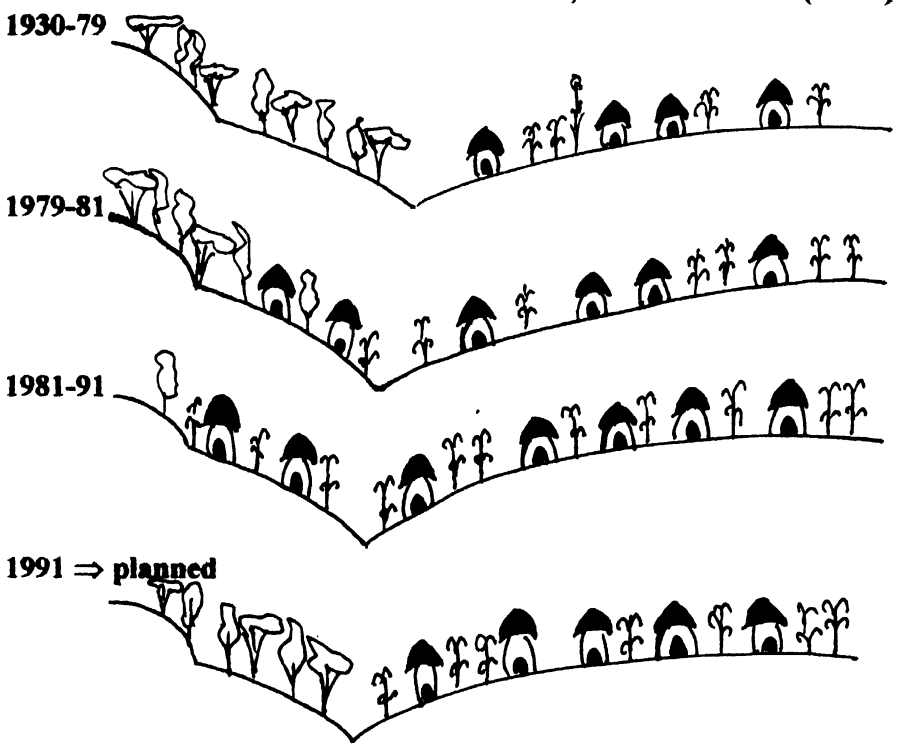


FIGURE 3
TRANSECT of
FUNYE RIVER CATCHMENT AREA,
near CHICHEWO DAM, ZIMBABWE (1991)

Actual land use	GRAZING LAND - FIREWOOD	RESIDENCE CULTIVATION	RESIDENCE CULTIVATION
Official land use	GRAZING LAND	GRAZING LAND	RESIDENCE CULTIVATION
Problems	DECLINING-TREE COVER--HEAVY EROSION - NO GOV. SERVICES-	LACK OF MANURE - SMALL LANDHOLDINGS - ILLEGAL SETTLEMENT-	LACK OF MANURE - STREAMBANK CULTIVATION LEADING TO EROSION - DECLINING YIELDS

FIGURE 4
HISTORICAL TRANSECT of
FUNYE RIVER CATCHMENT AREA,
near CHICHEWO DAM, ZIMBABWE (1991)



some kind. Figure 5 gives a simple example of preference ranking of fish in one community according to a variety of criteria.

This ranking exercise highlighted the local preference for fish and the existence of substantial unsatisfied demand. However, discussion with local people of the relative importance of different foods in the local diet also clarified that fish was regarded as a "condiment" rather than a "meat". The availability of fish therefore needed to be compared not so much with other types of animal protein as with other "condiments", such as gourds and pumpkins, green vegetables and insects or small animals collected in the bush.

Calendars and time use diagrammes
The ways in which different seasonal activities are woven together to form livelihoods through the year were discussed using calendars, also drawn up on the ground using appropriate materials. This helped the RRA team to understand where fisheries fitted into household livelihood strategies and its relative importance. Figure 6 shows how the supply of fish from one dam corresponded with the availability of other foods from different sources.

The time-use diagrammes used in Figure 7 highlighted the differences between women's and men's activities and the extreme irregularity through the year of employment, particularly for men during the dry season. This would clearly be of significance in the event of a project attempting to formulate income-generating activities in such an area.

Timelines
Historical events and changes were discussed using timelines drawn on the ground such as that shown in Figure 8. First of all, a few key past events - in most cases periods of drought - were identified and used as reference points for the formulation of the time frame. Then other events mentioned by local people in reference to the dam and water use were located along the line in reference to these events. This helped clarify the sequence of changes and put current conditions in historical perspective.

Venn diagrammes
This form of diagramme was used during the discussion of the institutions and agencies responsible for different aspects of dam management in one of the RRA locations. The graphic layout helped to clarify the relationships between different organisations and eventually helped the team to identify some of the key administrative issues which were creating problems for fisheries management on the dam. Figure 9 show the Venn diagramme developed.

2.5 RRA findings

An important part of the activity was to develop and learn about the RRA process itself and assess its usefulness for the task at hand. This was largely carried out during the training sessions and preparatory workshops carried out for each RRA as well as during the field work where the activity, the techniques used and the problems encountered were continually reassessed during repeated workshops held in the field.

FIGURE 5
RANKING of PREFERENCES for DIFFERENT FISH SPECIES
MWENJE DAM, ZIMBABWE (1991)

FISH TYPE	*RANKING CRITERIA* Not bony	Good size	No religious prescription	Taste
Sinde (barbus)	1	3	=1	2
Magwaya (bream)	2	2	=1	1
Mhahle (barble)	3	1	3	3

FIGURE 6
SEASONAL CALENDAR showing availability of
FISH, VEGETABLES and WILD FOODS (insects and grubs)
TARU DAM, ZIMBABWE (1991)

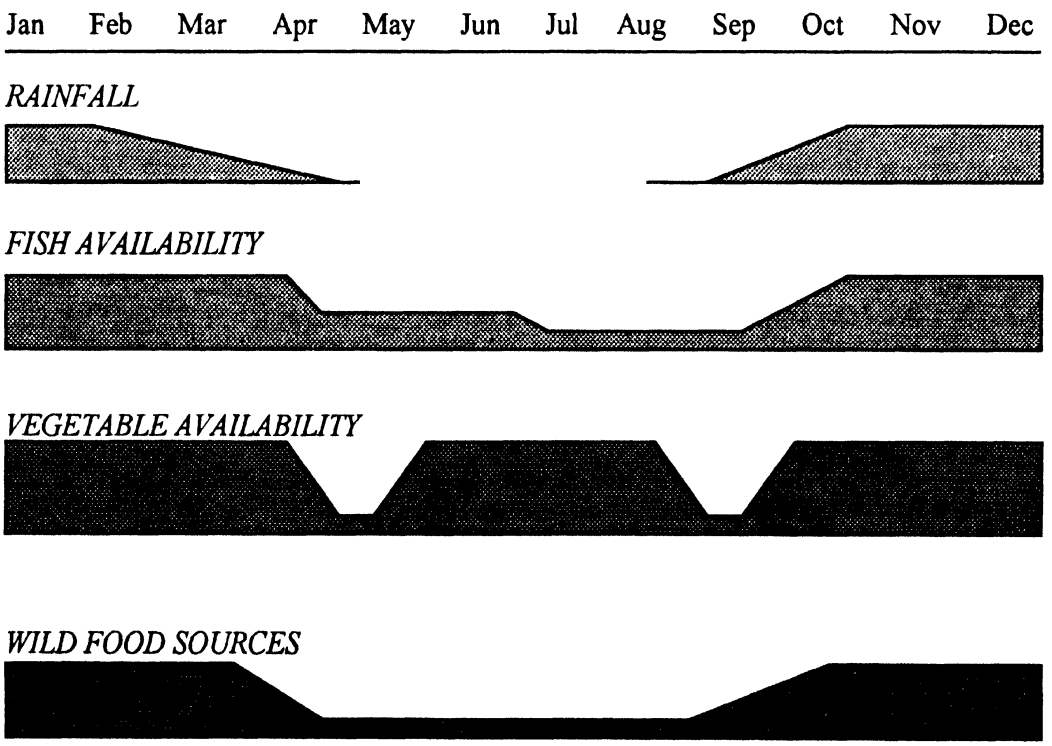


FIGURE 7
SEASONAL DAILY ACTIVITY CHARTS for MEN and WOMEN, DZINAVENE VILLAGE, ZIMBABWE (1991)

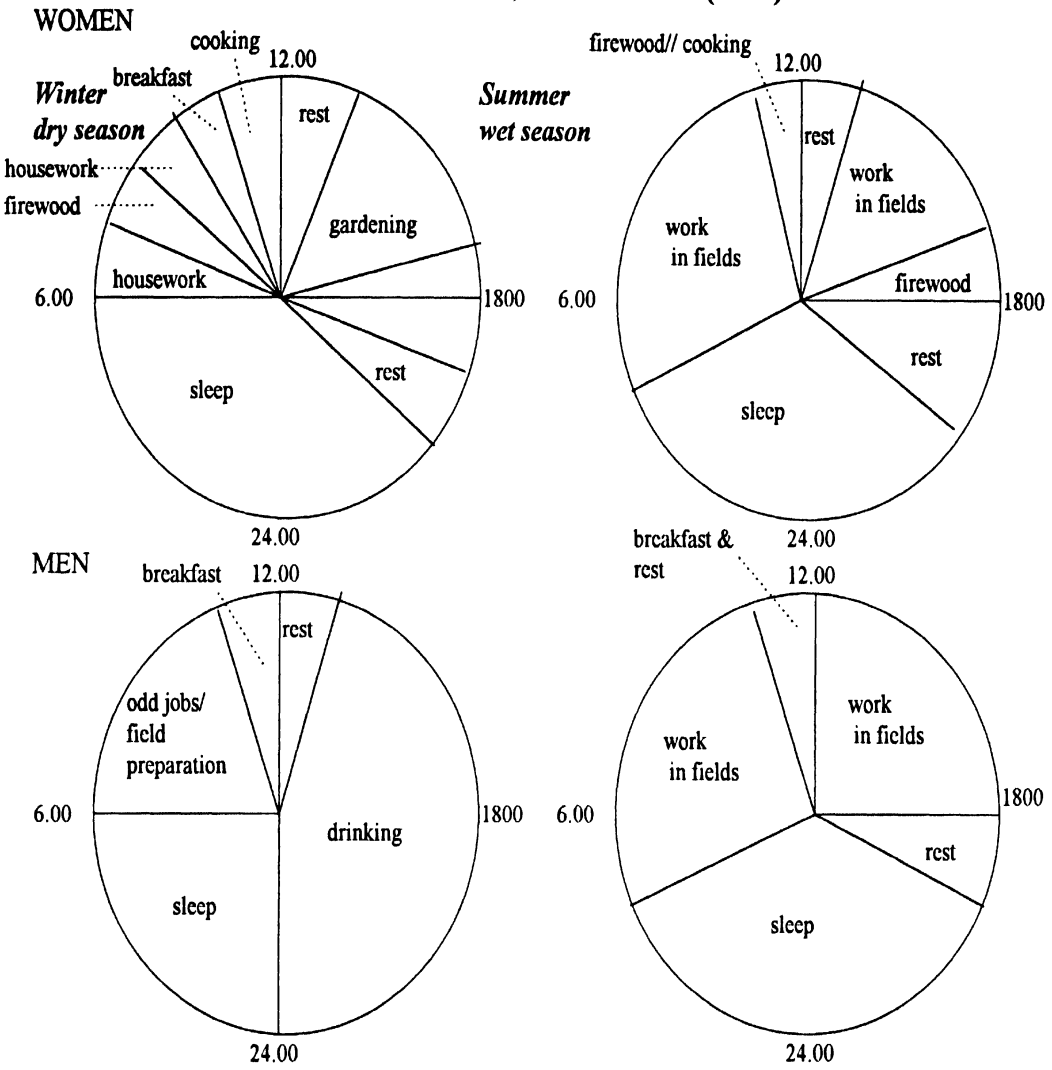


FIGURE 8
TIMELINE illustrating HISTORICAL CHANGES at TARU DAM, ZIMBABWE (1991)

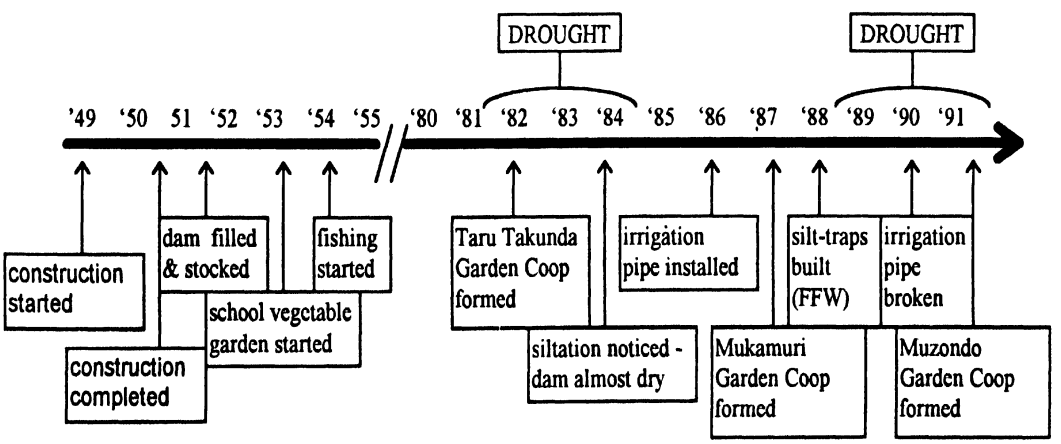
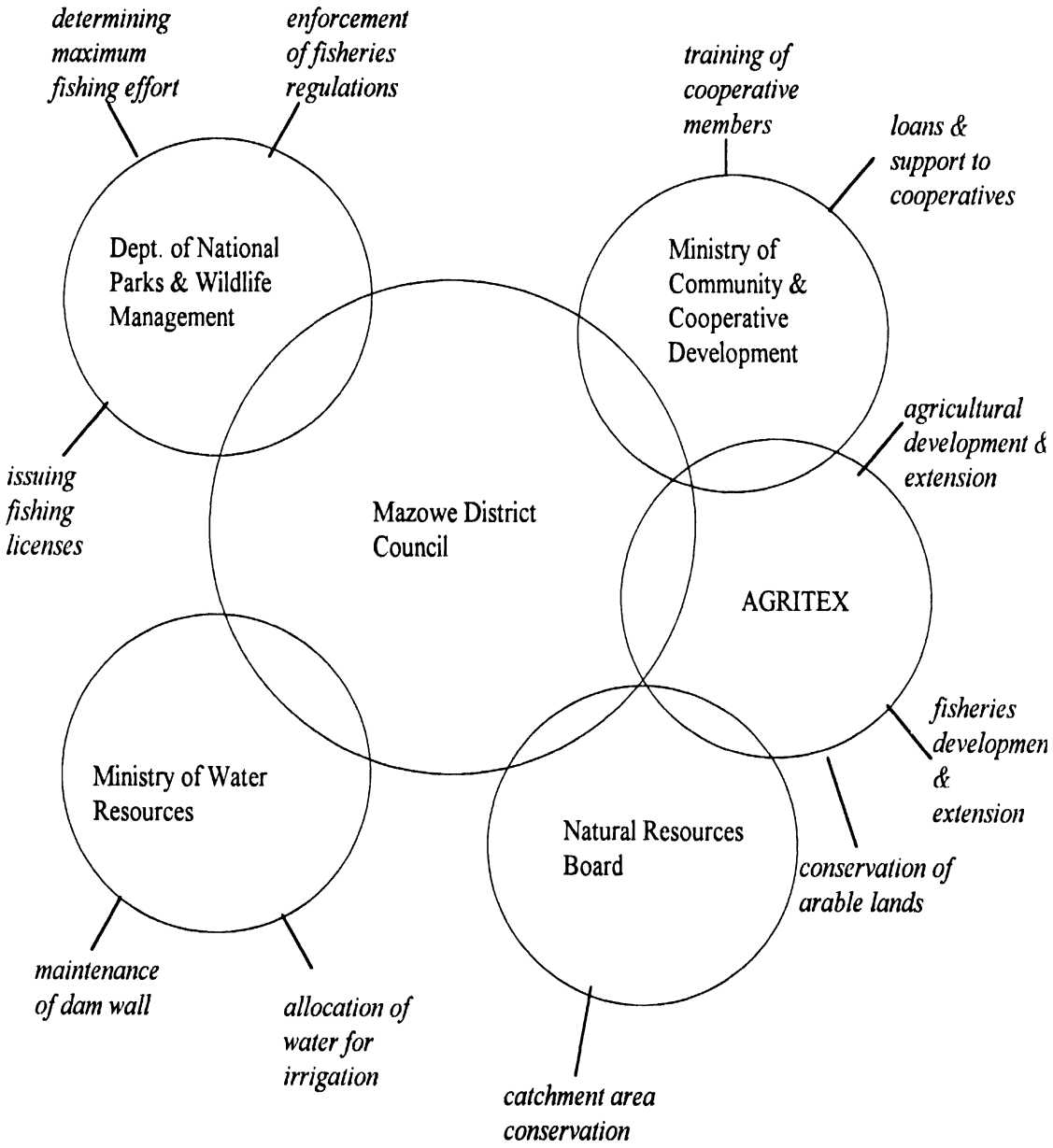


FIGURE 9
VENN DIAGRAMME showing INSTITUTIONS and AGENCIES concerned with DAM MANAGEMENT, MWENJE DAM, ZIMBABWE (1991)



However, the results of the RRAs themselves were indicative of the potential uses, and limitations, of the approach. On the one hand, two of the RRAs clearly showed that fisheries and fisheries development were a relatively low-priority for the people living around small water bodies, at least in relation to some of the **other** uses of those water bodies. While fish from these water bodies often made a small but significant contribution to people's diet in surrounding areas, uses such as irrigation and the watering of livestock were generally regarded as being more important. On one larger, older dam, fisheries had become a significant source of income for a small group of local people and there was sufficient importance attached to the fishery to generate problems over fisheries management.

For ALCOM, this meant that, in two out of three areas looked at, there were no feasible fisheries enhancement measures to be undertaken with local communities in the immediate future. In a third location, assistance was subsequently offered to improve the management arrangements on the dam which suffered from administrative and organisational boundaries which were inappropriate for effective control of fishing.

2.6 "Aquaculture" RRAs

These initial RRAs undertaken by ALCOM generated useful information about the uses and users of small water bodies in a range of locations in Zimbabwe and helped orient ALCOM's work on small water body fisheries development. Perhaps more importantly, from ALCOM's point of view, the RRA approach and methodology were tested and seemed to be well-adapted to looking at small water bodies as systems with multiple uses and highly variable contexts. However, the fact that only one out of three RRAs actually identified a viable activity for the programme highlights an important problem which the use of RRA (and to an even greater degree PRA) raises for institutions or programmes like ALCOM which specifically address **aquaculture** issues.

RRA - a multidisciplinary approach

RRA explicitly aims to achieve a **multidisciplinary** understanding of conditions on the ground and avoid bias towards one or another particular discipline. Thus, as explained later in this paper, RRA teams should seek to include a range of relevant disciplines when looking at rural systems - agriculture, forestry, fisheries, social sciences, ecology, land management, etc. This avoidance of a particular disciplinary orientation is reinforced by the use, within the RRA framework, of mechanisms to allow local people, or "target groups", to express their own concerns and priorities. Clearly people living and working in rural communities do not generally think in disciplinary terms but tend to combine a range of activities in order to ensure an adequate livelihood through the year.

Organisational and institutional issues

As a result, any aquaculture-oriented organisation which uses RRA approaches for project identification or "exploratory" analysis of local conditions is likely to find that. as often as not, aquaculture is **not** a priority for local people and that there is **not** any viable reason for carrying out an aquaculture project. Externally funded programmes, such as ALCOM, with a mandate to develop and try out new approaches, may be able to "afford" to carry out RRAs which do not lead directly to projects and are therefore "redundant" (in the sense of not "producing" project activities). Indeed, one of the

reasons for using RRA in the first place is precisely to avoid attempts to implement projects on the ground only to discover **after** they have begun that they are genuinely "redundant" (in the sense of not actually addressing the real needs or priorities of the beneficiaries).

However, given the budgetary limitations facing many governmental institutions concerned with aquaculture, carrying out an RRA in a particular location may be regarded as paramount to starting a project there. More rigid bureaucratic organisations may not have the sort of flexibility which allowed a multilateral programme such as ALCOM to carry out an RRA, assess real needs together with local people and, once the relatively low priority of fisheries development on the local small water body was ascertained, simply withdraw.

The use of RRA approaches, and particularly PRA approaches, can therefore give rise to something of a contradiction. RRA can be a useful tool for collecting better information, involving local people in analysing their circumstances and coming up with more relevant development proposals. But, when used by institutions which have a limited technical orientation, its use can easily lead to the identification of issues and problems which that particular institution or agency is not equipped to deal with. This problem does not mean that RRA is not applicable for aquaculture agencies, simply that its implications need to be thought through and accommodated - by the inclusion of non-aquaculture specialists in "aquaculture" RRA teams and the involvement of other agencies that can link with a wide range of supporting institutions which can address issues raised during an RRA.

Aquaculture PRA ?

In PRA, as discussed later in this document in more detail, this contradiction is even more marked. PRA places more emphasis on encouraging and facilitating local people in making their own decisions about priorities and potential. Therefore it practically has to be completely open-ended, particularly in terms of its disciplinary orientation. There is a good case to be made that there is no such thing as an **aquaculture** PRA. Local people would always be the ones to decide what the focus of their PRA should be.

Later in this paper, the sorts of planning framework which are best adapted to the use of RRA and PRA are discussed. There are also ways in which these approaches can be used in a more focused fashion, perhaps limiting the "participatory" elements to some extent but making the techniques more easily adaptable to the sorts of institutional and organisational contexts which most aquaculture workers have to deal with.

3. WHAT IS RAPID RURAL APPRAISAL ?

SUMMARY

*RRA consists of a set of **guidelines** which help people to work in a structured but flexible way in rural communities and a set of **tools** to aid communication and interaction with those communities. How these guidelines and tools are used depends very much on what users need and want. An overview is given of the different types of RRA tools, how they are different from traditional research tools and how they can be combined into an "RRA".*

Many "definitions" of RRA have been offered by different people who have worked on it, but there are always others who object to those definitions because they are not what **they** think RRA is or should be. The fact that it is difficult to give a precise definition to RRA is a reflection of the fact that it is very **flexible** - it is a tool which can be used in a lot of different situations to achieve very different objectives. Not surprisingly everybody seems to think RRA "is" what **they** have used it for.

So it is probably best to avoid "definitions" and just describe the features which most RRAs seem to have in common.

RRA essentially consists of the following :

- an activity carried out by a group of people from different professional fields or disciplines which usually aims to learn about a particular topic, area, situation, group of people or whatever else is of concern to those organising the RRA

- it usually involves collecting information by talking directly to people "on the ground"

- it uses a set of **guidelines** on how to approach the collection of information, learning from that information and the involvement of local people in its interpretation and presentation

- it uses a set of **tools** - these consist of exercises and techniques for collecting information, means of organising that information so that it is easily understood by a wide range of people, techniques for stimulating interaction with community members and methods for quickly analysing and reporting findings and suggesting appropriate action.

These features are just about the "bottom line" with RRA but everything else is fairly flexible within the guidelines described below.

3.1 RRA guidelines

Box 1 lays out a set of "guidelines" for RRA. These are characteristics which **most** RRAs have in common. If you like, they are the "principles" of RRA. They are not a set of instructions but people who are doing RRAs need to keep these in mind and refer everything they do back to these "principles".

So, for example, if someone working on an aquaculture project wants to use RRA to learn about the local market for fish, they could look at these guidelines as they are planning their investigation and use them to ask themselves questions, such as :

- has this activity got a clear structure ? - i.e. at least a beginning, a middle and an end and some limits to how long it will take and how far it can spread .
- has it got **too much** structure ? - i.e. if we find out something new and unexpected during the course of the study, will we be able to change course and follow it up ?
- is there a good mix of people involved from a range of relevant ? - i.e. if we're looking at fish marketing we probably need someone with a background in economics, preferably a marketing specialist, a fisheries specialist who knows local species, a social scientist who knows the area and, if women are involved in marketing, a gender specialist, etc.
- with the team of people involved, what biases are we likely to bring to the study? - i.e. are we assuming that only men sell fish ? are we only planning to visit big markets in towns ? are there other markets we should be visiting ? are we only thinking about certain types of fish when others may be important for some people ?
- how can we make sure that the results of this study get produced quickly and used ? - are people from the right institutions involved ? have we told everyone concerned about the study and asked their opinions ? how and when are we going to produce a report on it ? who's going to read it ?
- have we allowed time and mobility to talk to a good range of local people ? will local people be given enough opportunity to talk to us ? - i.e. do they know we are coming ? should we organise meetings ? have we allowed enough time to cover the range of people and communities we want to cover ?
- have we prepared a range of tools so that we can ask about the same thing in several different ways ? - have team members been trained to use different tools ? will the tools we plan to use actually help us find out what we want to find out ? will local people be able to use these tools as well ?
- will there be an opportunity to review what we are learning while we are in the field ? - will the team be able to meet regularly and discuss what they have learnt? where, when and how often ?

BOX 1
RRA Guidelines

- *Structured but flexible*

RRA is a structured activity requiring careful planning, clear objectives, the right balance of people involved and a good choice of tools and techniques for use in the field. At the same time, it is flexible enough to respond to local conditions and unexpected circumstances. Progress is reviewed constantly so that new information can be understood and the focus of the RRA redirected.

- *Integrated and interdisciplinary*

RRA helps "outsiders" to learn about rural conditions by looking at them from many points of view. This means having people participating with a variety of different technical and scientific skills and a balance of different institutional outlooks. This requires an integrated development approach which cuts across institutional and disciplinary boundaries.

- *Awareness of bias*

Researchers and development workers who are trying to understand rural conditions can be biased by their urban attitudes, their own professional and personal priorities, the type of transport they use, the language they speak. The people researchers talk to can be biased as well by their limited experience, their customs and beliefs and their own interests and those of their families. RRA seeks to avoid biases by being aware of them and by being systematic in taking into account different points of view and different sets of interests.

- *Accelerating the planning process*

RRA tries to shorten the time it takes to get from knowing nothing about an area or a situation to deciding what development interventions might be best for that area by using key informants, careful observation and by exploiting the knowledge and experience of local people. The information produced is analysed "on the spot" and presented in a form which is more easily used by planners and which can be discussed and understood by local people themselves.

- *Interaction with and learning from local people*

Whatever the purpose of the RRA it must involve the people who are the intended "beneficiaries" of any eventual development activities. RRA should give them the opportunity to describe their lives and conditions. The people carrying out an RRA must be prepared to listen to local people and learn from them. Participation by local people can take many forms but any RRA will involve intense interaction between researchers, planners, traditional and formal authorities and local people.

- *Combination of different tools*

The RRA approach uses a combination of communication and learning tools. These tools help outsiders to observe conditions in a concise but systematic way. They also allow local people to present their knowledge, concerns and priorities to outsiders. The combination of different tools and techniques builds up a more complete picture where different viewpoints can be compared and contrasted. The systematic cross-checking of information collected in different ways by different people from different sources can increases accuracy and comprehensiveness.

- *Iterative*

During an RRA, what has been learnt is constantly reviewed and analysed in the field. This is usually done in workshops carried out at regular intervals. This means the focus of the RRA, the tools used and the people talked to can be adjusted constantly.

Obviously, these guidelines leave plenty of room for the people using RRA to decide exactly what they want to do with it. For example, if the most important thing for the people organising the RRA is to collect information **quickly**, they might want to structure the activity more carefully so that things move faster. If one of the principal concerns is to get local people involved as much as possible, the structure of the RRA would probably have to be looser and more time allowed for getting to know the people and putting them at ease.

Box 2 gives some examples of how aquaculture workers might want to adjust the guidelines to suit their needs in particular situations.

BOX 2
RRA Guidelines
for Aquaculturists

Aquaculture RRA in an integrated rural development programme

If aquaculture workers are being asked to develop aquaculture activities in a particular area as part of an integrated area development programme, they might want to conduct an RRA to "zone" the area and identify existing and potential land and water uses. Their concern would be to decide where aquaculture would be a good use of land and water compared to other uses. To do this, the important features of their RRA would be the involvement of a **multidisciplinary** team which can look at a wide range of different land uses, analyse the environmental factors "on the spot" and come to rapid conclusions about priorities for particular areas. Participation of local people at this stage might be relatively limited if the idea was to establish what activities are technically and environmentally feasible in different zones.

Aquaculture RRA in a poverty alleviation project

In a situation where it is already known that aquaculture is technically and environmentally feasible but project planners are specifically interested in finding out whether the benefits of aquaculture can be directed towards particularly poor groups in the community the emphasis of an RRA would be very different. It would probably be less important to have a wide range of technical disciplines involved but much more important to spend time discussing issues such as land tenure, access to water, community dynamics and power structure with local people. The people carrying out the RRA would have to pay great attention to the potential biases of the different people and groups they talk to and carefully cross-check the different opinions they hear. Special efforts would be required to talk to "invisible" groups in the community such as women and old people who would normally be difficult to contact.

The examples in Box 2 are just two ways in which aquaculture workers might take different elements in the RRA guidelines and concentrate their attention on them. That would not mean ignoring the other elements but simply adjusting the emphasis of their RRA to fit their requirements in a particular situation.

3.2 "Participation" and RRA

Many of the people and organisations who have worked on RRA and contributed to its development would also regard "participation" as part of the "bottom line" in RRA and would want to see specific reference to being "participatory" in the guidelines above. Instead, use of the term **here** has been specifically avoided. Clearly, to do RRA properly you have to talk to people and this is a form of "participation" by those people you talk to. But the term "participation" or "people's participation" has come to be interpreted in so many different ways in development that its use is easily subject to misinterpretation. Given that **some** of the interpretations of the term "participation" have very important political and social connotations it will only be used in this document where those connotations are relevant and can be made explicit.

By saying that "participation" is essential to RRA there is a risk that some people involved in aquaculture, who may work within political or institutional structures which do not encourage, accommodate or even care about "participation", might assume that RRA is "not for them". They may be right when they assume this, but the decision about whether or not to use RRA be based on the usefulness of RRA as a tool. RRA should not be discarded because people think it's something that's only good for NGOs or social activists.

For the purposes of this document, as clear distinction has been made between **Rapid** Rural Appraisal (RRA)and **Participatory** Rural Appraisal (PRA) precisely in order to accommodate this difference. RRA is regarded here as a set of guidelines and tools which can be used in many different ways and many different circumstances and without necessarily attempting to change political and social structures. PRA is used to specifically refer to a use of RRA approaches and tools to encourage participation in decision-making and planning by people who are usually excluded. It therefore clearly has important political and social connotations which need to be made explicit and understood.

3.3 RRA tools : an overview

Apart from the guidelines above, the other main "component" of RRA is a set of tools which can be used to help the people carrying out an RRA collect information, order and interpret it, encourage discussion with people "on the ground" and present the findings in a clear and concise way which can be understood by a wide range of people. There is extensive documentation available on these RRA tools and how to use them, some of the most important of which are listed in the bibliography. In addition, a brief description of these tools is given in Appendix 2.

Here a general picture of the different **types** of tools and how they can be combined in an RRA is presented.

The range of tools used in RRA is constantly growing as people working in the field develop new techniques. Many aquaculturists working in the field may have their

own ways of collecting information or assessing conditions which are relevant for their work and they should not hesitate to use these "personal" tools in the context of an RRA provided they can be incorporated into the guidelines described above.

However, when taking part in or organising an RRA people need to take care that the tools which they plan to use are appropriate to the particular circumstances and conditions in which they are going to be working. Sometimes the tools and techniques which development workers have got used to employing are only relevant to the very specific circumstances or cultures within which they normally work. It can often be very difficult to transfer such techniques to other settings and circumstances.

BOX 3
Adapting RRA techniques to local circumstances

In Tanzania, one researcher with considerable RRA experience in Asian countries but little African experience (and no local language skills), was told by local colleagues' that a formal village meeting was an important first step to doing any village-level research but was so confident that "he knew what he was doing" that he chose to ignore their advice and approach individual households directly without holding any kind of preliminary meeting. After a few days of attempting to carry out a village RRA in this way, he was forced to accept that people could not be approached in remote villages with little experience of outsiders without first being publicly "cleared" by the village authorities. But by that time people were so suspicious of his intentions that it became very difficult to do any further work at all.

Box 3 gives one example of how something as basic as how the first approach to a community is made can be completely different from one part of the world to another. Many other elements in RRA are subject to similar variation. Just as an example, different types of mapping exercise are very widely used in RRAs but in some cultures people may have great difficulty in understanding what a map is. Similarly a mapping exercise with people living in dense tropical forests is likely to have to use a very different approach to what might be used with people living in the open savannah. The way people conceive of and represent their environment and surrounding are very different and very dependent on their cultural background. Whoever is doing an RRA has to learn to accommodate such differences

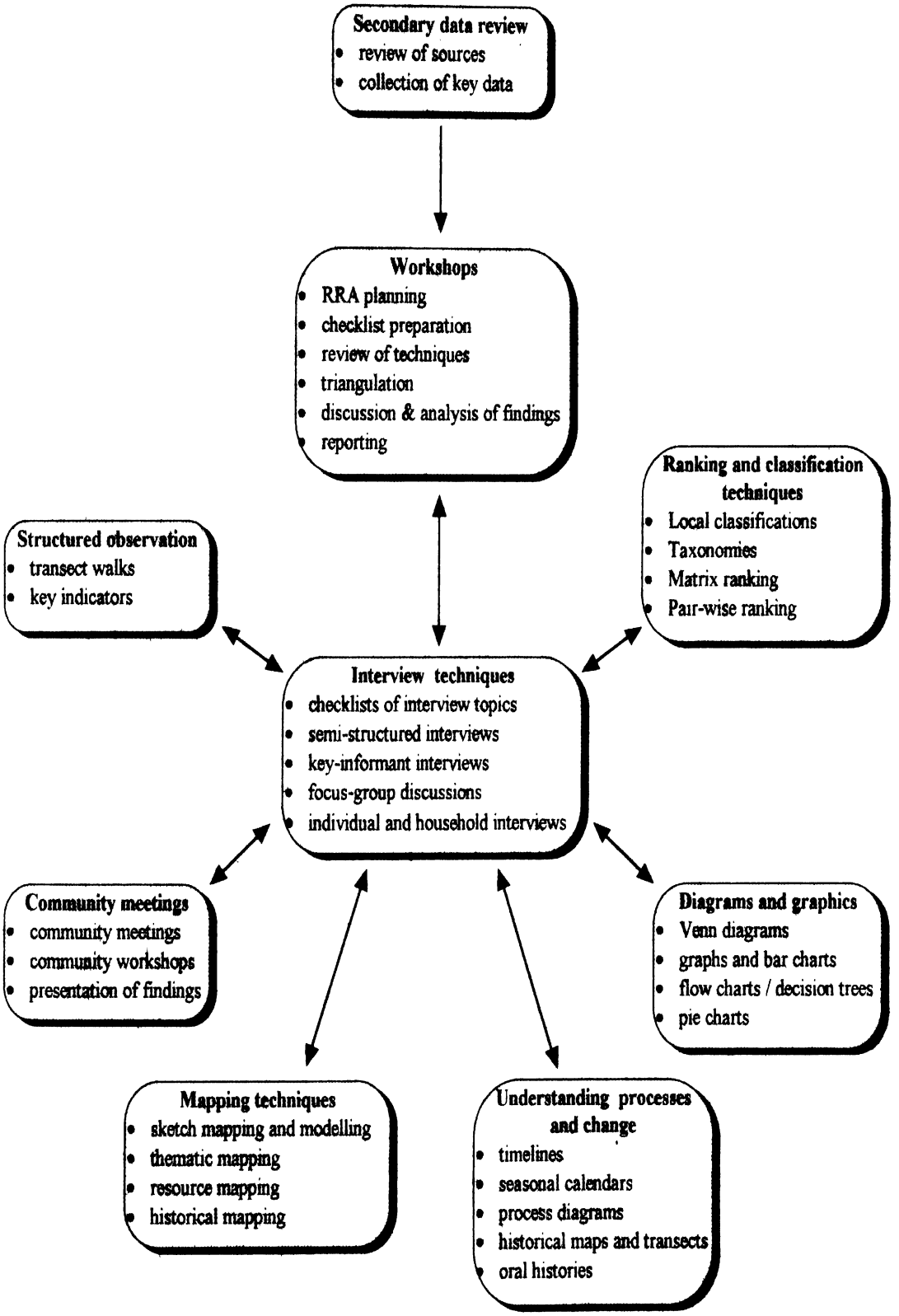
Combining RRA tools

Bearing in mind these possible variations and problems, several distinct "types" of tool have emerged which have been widely applied in many parts of the world.

Figure 10 shows the main elements which make up the RRA "tool kit" and how they relate to each other within a "typical" RRA. This gives some idea of how an RRA structures the process of collecting information and learning about rural conditions while remaining flexible.

In brief, an initial review of existing information and a workshop involving the interdisciplinary team carrying out the RRA would establish objectives for the RRA draw up a list of topics which need to be investigated, discuss techniques to use in

FIGURE 10
RRA TOOLS



the field to learn about those topics, identify key informants, distribute responsibilities among different team members and plan the RRA.

The bulk of the work in the field is generally carried out through a series of semi-structured interviews. During the course of these interviews, or to supplement them, a variety of communication tools can be utilised to facilitate communication between researchers and local people. The results of these interviews and the various exercises used during them are fed back into repeated workshops during the course of the RRA so that the whole team's understanding is constantly updated. In these workshops, the topics for investigation are reviewed, and the techniques being used checked. New or alternative techniques can then be discussed and the coverage of topics and different disciplines taken into account.

This combination of tools, together with repeated workshops to assess what has being learnt and what needs to be investigated further gives the RRA approach considerable flexibility and an ability to follow up unexpected lines of enquiry and understand processes which may not be immediately apparent. The combination of different viewpoints and disciplines in these workshops, together with the new learning being acquired from a variety of different information-gathering techniques in the field, allow the team to build up a progressively more complex picture of whatever it is that is being investigated.

The case study in Box 4, about an RRA related to fisheries and aquaculture in Bangladesh, helps to clarify how this process can work in practice. In this particular case the focus of the RRA was started off general and narrowed during the course of the work in the field as a particular issue was identified as being of key interest. In an RRA which started out focused more tightly on aquaculture issues, the opposite could easily happen. For example, if during the course of an appraisal of aquaculture practices in a particular area a shortage of cow dung as a fertiliser was identified as a key constraint, the focus of the appraisal might need to be adjusted to take a more general look at agricultural practices and the use of natural and artificial fertilisers in farming.

3.4 Strengths and weaknesses of RRA

This case study in Box 4 highlights some of the strengths of RRA as a research approach. These can be reviewed as follows

Strengths of RRA approaches

- The approach is **responsive and flexible** to new learning and conditions on the ground.
- Achieves a **complex understanding** of **processes** and **dynamics** and **connections** between different disciplines, activities and sets of conditions.
- The **analysis and interpretation** of findings is carried out **during the appraisal** providing opportunities for cross-checking.

BOX 4
RRA IN BANGLADESH

As part of a major fisheries study in Bangladesh, a series of RRAs were carried out in villages which were targeted by the study. These RRAs were designed to supplement and support quantitative surveys which were being carried out in the same communities using formal survey methods and proper household sampling.

The study of which these RRAs were part was looking at inland fisheries in general on the floodplains of Bangladesh but this included an assessment of aquaculture potential. Generally these appraisals followed a fairly standard format but the case of the appraisal in Jagannathpur, a village in Manikganj District in Central Bangladesh, illustrates how the RRA format allowed significant shifts in the focus of work.

An initial workshop was held with the research team already working in the area. This reviewed the experience and knowledge of the communities already accumulated. Using this information, the "standard" checklist or topics for investigation, which had already been developed and refined over the course of numerous other appraisals in other parts of the country, was further reviewed and refined in the light of local conditions.

After the first two days' work, when the team was reassembled for a review workshop, among the most striking findings was that aquaculture activities seemed to be far more developed in this particular area than in any of the other areas studied to date. The team had collected numerous anecdotes about disputes regarding the ownership of the many small ponds and ditches located near peoples houses. Some accounts of apparently extremely complex means of sharing the fish caught from these ponds were also collected.

The degree of interest shown in these ponds seemed unusual so a special checklist of topics was prepared for use by the team which would enable them to collect a more in-depth picture of pond use and tenure in the area. The ownership of ponds and ditches was to be mapped and a flow diagram prepared to show how the local aquaculture system worked. An experienced farming systems specialist on the RRA team was given special responsibility for this work and for the following two days he concentrated on this set of topics.

The result of this adjustment in the coverage and focus of the RRA midway through was of great importance, not just for the findings of that particular RRA but for the entire study.

The area are Jagannathpur was found to represent a stage in the development of small-scale aquaculture considerably in advance of most of the other areas studied. Problems regarding pond tenure were increasing dramatically proportional to the growth of interest in the culture of fish. While no less than 16 different forms of tenurial arrangement for ponds and other small water areas had developed to facilitate the development of pond culture, already the options, particularly for poorer, landless households were diminishing - owners of ditches and ponds were leasing them out to experienced fish farmers for progressively shorter periods before taking them over themselves.

The principal interest related to aquaculture in this study was in its use as a mitigation measure for expected losses to fisheries due to flood control, especially for poor and landless rural households. The limitations on access to water areas for fish culture seen around Jagannathpur, and revealed during the course of the RRA but largely invisible from the hard data collected by the quantitative survey, provided an important indicator of what could be expected from aquaculture as a means of mitigation. Aquaculture in the area was developing rapidly and clearly would continue to do so, but the more profitable and widespread it became, the more it could be expected to be controlled by those already in possession of the key resources of land and water. This cast serious doubts on one of the basic premises for encouraging aquaculture development as a means of poverty alleviation in Bangladesh i.e. that there were enormous numbers and areas of un- and under-utilised ponds and ditches which could be turned to aquaculture use. Evidence from this RRA indicated that, as soon as aquaculture had become economically and technically feasible in those under-utilised ponds, they would quickly come to be "utilised" by their owners to the exclusion of poor lessees or share-croppers.

At the same time, the weaknesses of the approach need to be recognised and accepted.

Disadvantages of RRA approaches

- The findings will **not** be **statistically "sound"**, even if RRA teams can use "quick and dirty" sampling methods to make sure that they cover a reasonable number of people or households in a particular area.
- **Risk** that the information gathered by an RRA is **not very "representative"** but is a **collection of "particular cases"** which do not tell researchers very much about general conditions.
- RRA is very **dependent** on the **skills of the people carrying it out** and having the right combination of experience and viewpoints on the team.

3.5 RRA and formal surveys

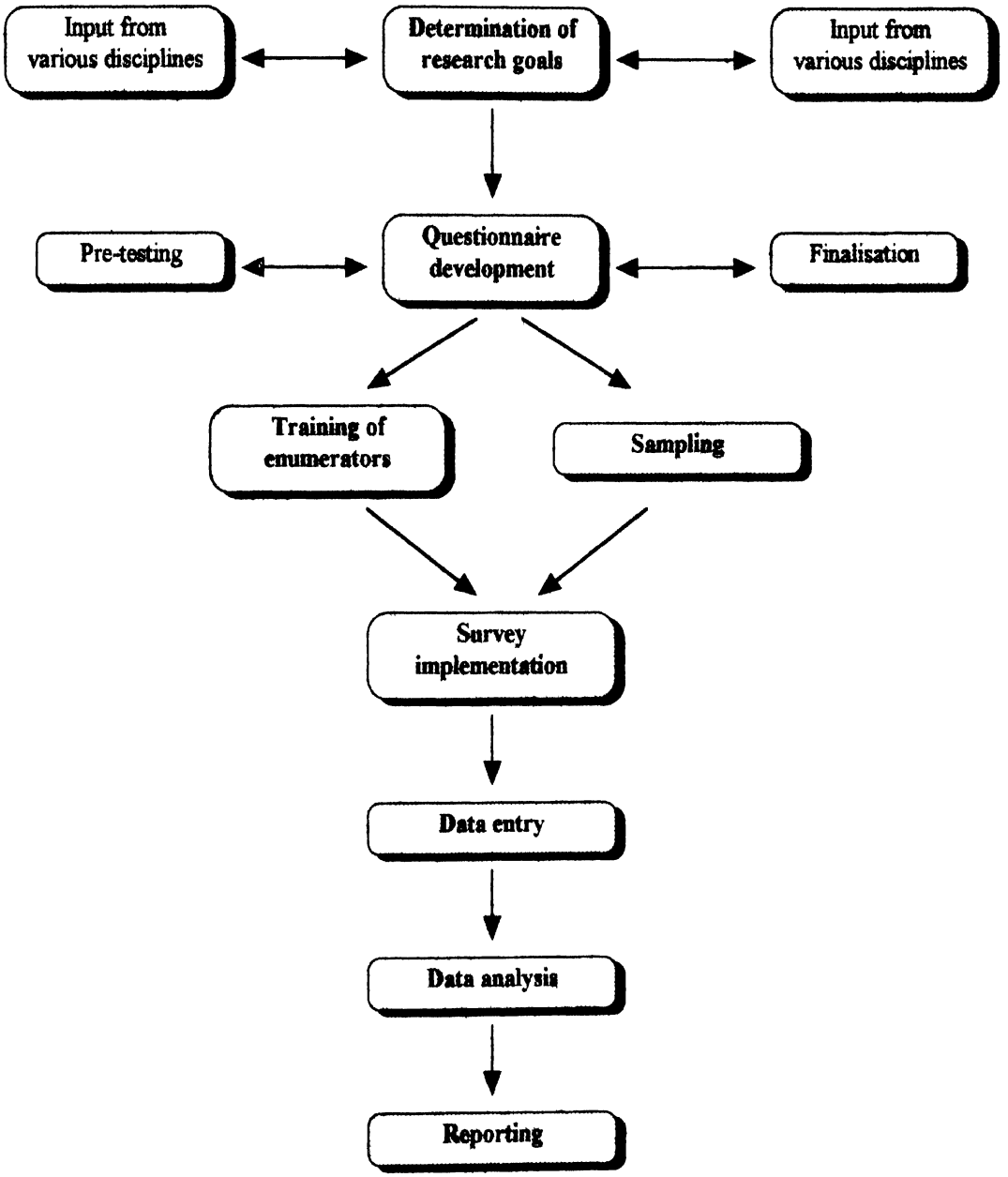
The relative flexibility of the RRA approach and can be compared with the approach which is generally used in formal quantitative surveys, as shown in Figure 11.

The opportunities for adapting formal surveys to the conditions found on the ground once the initial testing and preparation has been completed and the survey is in motion tend to be limited. The very nature of such surveys means that changes from one application of the questionnaire to another need to be **avoided** as far as possible in order to assure uniformity of application. This is also the **strength** of formal surveys as it means that the data produced can generally be used with a greater degree of confidence.

Another major drawback for which formal survey techniques are frequently criticised is that they do not permit adequate feedback from the people who are the "objects" of the survey. Boxes on a piece of paper filled with numbers or crosses do not communicate a great deal about the realities of rural conditions or what rural people think. At worst they tell researchers how rural people think particular questions should be answered. At best, they provide a concrete but limited view of certain aspects of rural conditions.

If there is practically no communication between the people applying a survey and those interpreting the data, this is a valid criticism, but well-trained enumerators in a well designed survey will be given the opportunity to expand on and explain the data they have collected to researchers and talk about the context which may be lacking in their completed forms. A well-designed and implemented formal survey **can** overcome many of the short-comings commonly associated with quantitative research approaches. Unfortunately, just as many RRAs are badly carried out, under-resources and poorly planned, many formal surveys fail are not as carefully prepared and implemented as they should be.

FIGURE 11
FORMAL SURVEY METHODS



The strengths and weaknesses of quantitative methods can be summarised as follows :

Strengths of formal surveys

- The use of **sampling methods** to determine the coverage of the survey means that researchers can have greater confidence of the "representativeness" of their findings (provided , of course, that the sampling is done properly).
- Surveys can also provide **"hard" data** and actually quantify certain features of local conditions.
- This is extremely useful for planners and people working on projects who need to have quantitative indicators so that they can **measure** the effects of their work.

Weaknesses of formal surveys

- Once the work in field has started there is usually little opportunity for the direction of the research to be adjusted in response to the data which is being collected.
- Changing or adding material to a survey once it has started would run the risk of compromising the whole approach which relies on asking the **same** questions, in the **same** way to as large a sample of people as possible in order to ensure **uniformity**.
- The final result of a formal survey is extremely reliant on the **thoroughness of the preparation** of the questionnaire and **training of enumerators** .
- The **information** gained tends to be rather **"two-dimensional"** - a snap-shot of existing conditions and a set of answers to specific questions which the people preparing the survey think are important.
- The **analysis and interpretation** of data is usually carried out **after the end of the survey**, limiting the opportunities for cross-checking.

Making choices

From this comparison it should be clear that more traditional quantitative methods of research, such as formal questionnaire surveys, and semi-structured approaches, such as RRA, are **complementary** rather than opposed approaches to rural research and collecting information for rural development planning. Both have their uses (and abuses) and neither of them, by themselves, can satisfy all the potential information requirements of all potential users.

Development workers, including aquaculturists, need to carefully assess **what** their information requirements are and **how** they intend to go about planning their activities and then decide **which** approaches or combinations of approaches to use based on that assessment - not on fashion or pressure from donors wanting to "try out something new". The trap of considering RRA (or quantitative surveys for that matter) to be "the only way " should be avoided at all costs. There are types of information and approaches to planning where RRA can make a very valuable contribution, but there are also situations where statistically rigorous data sets are an absolute requirement.

This document will try to illustrate situations and issues for which RRA, and PRA, can be used. But when it comes to making choices between approaches, aquaculture workers may have to take into account other factors besides the match between the types of information required and issues to be investigated and the research approach which is most suitable. Among the factors which need to be taken into consideration are :

- the knowledge, skills and experience of the people who are likely to be carrying out the research - if there is **no** in-house RRA expertise, is it worth bringing in potentially expensive outside expertise and spending time training people.
- if RRA training is undertaken, will it be used again later or is it just going to be used once for one activity ?
- might it be better to make use of existing skills and knowledge in preparing and implementing formal surveys
- what sort of information are planners expecting ? - if they are presented with RRA type information instead of "hard data" will they know what to do with it ?
- will there be resistance to introducing new approaches to information gathering and rural research ?
- are there ways that the two approaches can usefully be combined ?

Combining RRA and formal surveys

The last point in this list is of particular importance. One of the important drawbacks of formal survey approaches has always been that they tend to have a high "redundancy rate" - when planning a survey it is very difficult to resist the temptation to collect as much data as possible with the result that large amounts of the data produced are never actually used (but nevertheless consume time and resources for collection and processing)

This can be avoided by carrying out focused RRAs **before** preparing a questionnaire survey to identify what the real issues are and a **minimum data set** which will actually contribute to planning. This can greatly economise on the size and scope of the quantitative data which is collected and so save valuable development resources.

At the same time, RRAs carried out with multidisciplinary teams can greatly facilitate the subsequent surveys by taking time to explain surveys, allow the "target" population to ask questions and discuss their purpose and collect information which the survey would not be able to record on historical, social and cultural processes.

3.6 RRAs : the sequence and timing of activities

The series of activities which make up an RRA can vary considerably. But one of the key characteristics of **all** RRAs is that they are **structured** - they need to be planned ahead of time and they the activities in an RRA generally follow a fairly clear sequence. The sequence can vary considerably and even be adjusted during the course of the RRA but this does **not** mean that an RRA team can just go out into the field to "have a look around" with no clear idea of what they are looking for !

Like any research, an RRA starts off with a clear idea of the series of actions which are required in order to complete it and achieve its objectives.

Box 5 gives a "typical" sequence for an RRA. This sequence is only an **example** and does not necessarily represent the "right" sequence of activities. However, it lays out the types of activity which frequently make up an RRA and a possible sequence for them. In this particular case the RRA might be aiming at achieving a general understanding of conditions in an area or community and coming up with a provisional plan of action which was understood and agreed upon by the communities involved. The key feature of such sequences is that there needs to be a progression from obtaining a general understanding of local conditions (through transects and mapping exercises) towards an identification of key issues and topics which can be explored in more depth using appropriate techniques. The regular workshops provide the opportunity to review this progress and adjust activities accordingly.

Timing

The length of time taken for the appraisal as a whole and each of the various stages would vary according to the area covered and the complexity of local conditions. RRAs can last for a few days or a few months depending on the area covered, the complexity of the issues addressed and the way in which the RRA fits into other activities and the planning process as a whole.

The time and importance given to each of the various activities within an RRA can likewise vary considerably.

There is a considerable risk that **too much** emphasis be placed on the "rapid" element in RRA, particularly in terms of field work. RRA attempt to accelerate the process of learning about rural conditions but there are limits to the extent to which information gathering in rural communities can be speeded up. Carrying out a well-planned and intensive RRA can ensure that the time spent in the field is utilised as efficiently as possible but a proper understanding of the complexities of an area or community still requires time and a thorough cross-checking of information.

Several "short-cut" methods are used in RRA to try to cut down the time employed to the minimum necessary :

- ***Compromises in coverage***

RRA does not attempt to cover a statistically valid sample of the population as this is time consuming and involves frequent duplication of effort. Careful use of key informants, a systematic use of different informants and different learning techniques to investigate each topic being researched, an awareness of potential biases and the involvement of a multi-disciplinary team are all used to compensate for the more limited coverage of RRA.

- ***Limiting the collection of information to the essential***

By involving local people and constantly reviewing what is being learnt through workshops and discussions, RRAs limit the information which is collected to those aspects which are really important. Researchers priorities are constantly

BOX 5
A "TYPICAL" RRA SEQUENCE

RRA Preparation

1. Definition of objectives
2. Identification & contacting of team
3. Collection of existing information and data

Preliminary workshop (team members / other concerned groups)

4. Training of team members in RRA techniques
5. Review of existing information and data
6. Identification of appraisal topics and appropriate techniques
7. Planning of appraisal

1st Fieldwork Session

8. Use of RRA tools
   (mapping exercises, transects, semi-structured interviews, ranking and classification)

Intermediate workshop (team members)

9. Review of findings
10. Revision of topics and objectives

2nd Fieldwork Session

11. Use of RRA tools
    (thematic mapping, historical transects, topical interviews)

Intermediate workshop (team members)

12. Review of findings
13. Revision of topics and objectives

3rd Fieldwork Session

14. Use of RRA tools (focus group discussions)

Intermediate workshop (team members)

15. Review of findings
16. Definition of proposals or recommendations
17. Preparation of draft report
18. Preparation of community meeting

Community meeting
(team members / local community / other interested groups)

19. Presentation of RRA findings to community
20. Discussion and correction of findings
21. Definition of future action

Final workshop (team members / key local people / key interested groups)

22. Final review of findings and conclusions
23. Preparation of report
24. Definition of future action and responsibilities

compared with the priorities of local people, the key issues identified and studied and the focus of the appraisal adjusted.

- ***Communication and learning tools can be used directly to analyse and present information***

The process of analysis and presentation of RRA findings is accelerated by the use of tools for communication and learning which present information clearly and graphically and can be used directly for analysis and reporting. This, combined with the use of repeated workshops, means that RRAs can produce a concise and useful output considerably quicker than a traditional formal survey.

RRA does **not** save time by simply imposing random deadlines on the work in the field. RRA requires a considerable allocation of time for preparation and field work otherwise the quality of the information and recommendations produced is likely to suffer. The communication tools and learning techniques utilised by RRA mean that researchers have to adapt to the rhythms and timings of local people and this may mean taking considerably more time over field work than managers or planners would like.

RRA is not an "instant" solution. It does **not** consist of a group of "experts" wandering around the countryside "observing" at random and using their "expertise" to come to conclusions about conditions so that they can write a report. One of the reasons for the development of RRA was precisely to overcome the reliance of development planning on "expert" opinion because it often leads to biased conclusions and inappropriate development.

RRA can be relatively quick and effective **if** it is well-prepared and implemented. But if it is too quick and poorly prepared, it can produce biased and incorrect information just like any other research method.

3.7 RRA teams

The composition of the team which carries out an RRA is extremely important in determining the outcome of an RRA. Obviously, the composition of an RRA team depends very much on the objectives of the RRA and the particular concerns which it is addressing. In a specific technical discipline, like aquaculture, the way in which a team is made up is particular subject to variation as the scope of an "aquaculture RRA" could range from trying to understand a complete rural system (and aquaculture's place in that system) to why a particular bunch of fish farmers don't use fertiliser. In the first case, a larger range of disciplines would have to be involved, some of which might have very little to do with aquaculture. In the second case, two people from different disciplines (for example an aquaculturist and an agricultural economist) might be enough.

However, people putting together an RRA team, even if it is for an RRA focused on a relatively specific topic such as aquaculture, need to ask themselves a number of

questions about the team they a creating which will help them get the right balance of people. These questions are outlined in Box 6.

Gender considerations

Gender bias is particularly important as it is very easy for RRA teams which are predominantly male to carry out an RRA with little or no reference to women but come up with a set of recommendations which will seem perfectly valid to (predominantly male) planners. For male researchers, women in many rural communities are difficult to contact and talk to and may remain almost invisible to

BOX 6
RRA TEAMS - KEY QUESTIONS

1. ***Gender composition***
   Are women adequately represented on the team ?
   Have possible gender issues related to the focus of the RRA been properly taken into account in preparing the RRA ?
   How important do we expect gender to be in the particular issues we are looking at ?
   Is there justification for having a specialist who will be concerned specifically with gender issues ?
   What communication problems are likely to be faced by male researchers dealing with women and how can they be overcome ?
2. ***Multidisciplinary***
   What range of disciplines are likely to be relevant ?
   What range of disciplines are available ?
3. ***Levels of expertise***
   How experienced are team members in their different disciplines ?
   Is their experience related to the needs of the RRA?
   Do they have local experience ?
4. ***RRA Experience***
   Does anyone on the team already have RRA experience ?
   What is their understanding of "RRA"?
   Do we need to train people beforehand ?
5. ***Mix of Institutions***
   Are all the various institutions which are concerned with the area or the issues covered by the RRA represented on the team ?
   Are the people representing those institutions people who will be able to communicate the RRA's findings effectively to others ?
   Are people who might have to work on eventual follow-up activities also involved ?
   Is there a good mix of institutional levels i.e. from planners down to field workers ?
7. ***Language ability***
   Are there enough people on the team with a good command of the local language ?
   Are interpreters needed ?

anyone visiting the community for a short time. However **all aspects** of rural conditions studied by an RRA team will have gender dimensions which need to be taken into consideration.

Gender bias is probably the single most important bias which many research teams are subject to and a balanced gender composition on an RRA team a key requirement. Frequently, the composition of fisheries and aquaculture departments or agencies taking part in appraisals can make this a difficult requirement to meet but it is so important that the people organising an RRA need, if necessary, to contact other agencies specifically concerned with women and encourage them to participate in order to ensure a balanced composition on the team.

For RRAs looking at a wide range of issues, a specialist on gender issues should be included on the team wherever possible so that each topic of investigation and discussion can be analysed from a gender perspective.

Disciplinary mix

In theory, the composition of teams carrying out RRAs should be dictated by a careful consideration of the objectives of the appraisal, the issues which are thought to be of importance in the area and the need to have a balanced set of disciplinary, institutional and gender viewpoints represented on the team. As a **minimum** requirement, there should be a balance between specialists in the biological and physical sciences and specialists in the social sciences. In the case of RRAs looking at aquaculture this would generally mean at least one fisheries biologist or aquaculturist and one person with relevant social science experience.

However, the need for different formal backgrounds should not be overemphasised. The important point is to have people who can contribute different ways of looking at rural conditions - so, when organising an RRA on aquaculture, it might be possible for people to "cover" different disciplines at the same time if they have the relevant experience.

In practice, team composition is more likely to be dictated by the availability of personnel. RRA is an intensive activity which requires complete involvement from those taking part for the period of work in the field and it is often difficult to get the "right" people released from their normal duties for the period required.

Weaknesses in the disciplinary mix of an RRA team can at least partially be compensated by carefully identifying a few key people to take part who, either because of their experience or institutional position, may be able to make special contributions to the RRA. In addition, RRA organisers need to be aware of how the composition of the RRA team can **bias** an appraisal's findings. If a particular person on the RRA team is **known** to have certain fixed ideas about some aspect of conditions and it is clear that they will not change those ideas **whatever** they see in the field, this bias can be made explicit and taken into account when the RRA findings are being reviewed.

Levels of expertise

One of the risks of RRA is that it tends to rely on the knowledge, experience and "sensitivity" of team members to come to conclusions about rural conditions. These conclusions cannot then be tested or checked against "hard data". This means that

a great deal depends on the skills of team members. As a result, it has always been regarded as important to have experienced and skilled people on RRA teams.

Obviously this is preferable, but RRA does not depend only on the skills and experience of its team members to overcome the risks of coming to faulty conclusions due to lack of hard data. It is the combination of different viewpoints and the systematic use of cross-checking during an RRA that counts perhaps more than individual skills.

The presence on the team of "authoritative" experts, with a wide range and depth of experience in their fields, can be an advantage as they bring new knowledge and experience to bear on local problems. However, such "experts" also have to be willing to listen and learn from the activity. Frequently, those who are most qualified are also most likely to impose their own biases and interpretations on the work of the team. Experts who are not willing to learn something new during an appraisal can create more problems than they solve.

In such circumstances it can be better to have a less experienced specialist who is willing to learn something new than a highly experienced expert who is sure that he or she knows everything already.

RRA experience
At least one member of the team should have experience in carrying out RRAs. This person can act as trainer in RRA techniques and as facilitator, guiding the rest of the team through the process of carrying out the RRA and making sure that the activity keeps on track.

Mix of institutions
The involvement of people from the institutions and agencies which will implement RRA recommendations is important. It can ensure that the subsequent involvement of different agencies is based on the same understanding of the local situation and a similar interpretation of local needs and priorities. Where many agencies are involved a few key personnel have to be selected either because of their skills or because they are likely to play a leading role in the future. Team members from different agencies can also contribute a range of perspectives to the RRA and improve the depth of understanding achieved.

RRAs can provide an opportunity for people from different levels of the hierarchy of development agencies and institutions to work together. Involvement of such a range of people in an RRA can lead to a better understanding both of the conditions of "target" communities and of the different priorities and problems of workers at different administrative and organisational levels i.e. regional planners and village extension workers

Language ability
As many of the team as possible should be able to communicate directly with local people in their normal language. Use of translators and interpreters is clumsy and risky.

4. TYPES OF RRA

SUMMARY

Four broad categories of RRA are outlined and some general examples of their different uses given.

The guidelines for RRA given above obviously leave plenty of room for people to combine different tools and features of the approach according to their own requirements. Not surprisingly, given this flexibility, RRA has been used in an increasingly wide range of circumstances for many different purposes - this is exactly why there is often confusion over "what RRA is".

However, from the early days of development of RRA four broad categories of RRA "types" have generally been identified and, provided the limits of any categorisation are remembered, they are still valid. These "types" were first suggested by McCracken, Pretty and Conway at IIED in their work on RRA in the late 1980s (1987).

These categories are :

- "Exploratory" RRAs
- "Topical" RRAs
- "Monitoring and Evaluation" RRAs
- "Participatory" RRAs

Boxes 7, 8 and 9 give a few examples of potential uses of these different types of RRA while the final section of the chapter explains why "Participatory" RRAs are dealt with separately.

BOX 7
USES OF EXPLORATORY RRAS

Planning for integrated development - In integrated or area development programmes, an RRA or series of RRAs is often conducted early in the planning phase of the programme to identify priority problems and issues in the communities covered.

- *Research on rural systems* - RRA can be used to understand the principal features of rural systems in an area in order to identify priority fields for intervention.

Assessment of resource use - Agencies concerned with a particular resource or set of resources, such as forests or water, can use RRA to understand how these resources are being used and what their conditions are.

Identifying locations for development activities - Technical agencies looking for suitable locations for development projects or pilot activities use RRAs to quickly assess the suitability of a wide number of

4.1 Exploratory RRAs

These are RRAs that aim to help development workers and planners learn about rural conditions in particular areas with a view to designing appropriate development activities. Those carrying out the appraisal may not know very much about the area they are looking at and want to find out as much as possible that is relevant to their work.

Exploratory RRAs look at a wider range of topics and issues and try to understand the connections between them. They can use a variety of parameters as a starting point : a region, an area, a water catchment, a group of communities, a social or occupational group or a particular resource.

Exploratory RRAs need to be genuinely multi-disciplinary so that they cover as many aspects of the particular area of focus as possible and identify unexpected connections within and around the system being investigated. They are thus more likely to involve larger teams and a greater range of institutions and disciplines. Clearly, the more different points of view which can be represented on the team for an exploratory RRA, the more complete the coverage of different aspects of local conditions is likely to be. On the other hand, a team which is too large can become unwieldy and difficult to manage, as well as being intrusive for local communities.

4.2 Topical RRAs

Topical RRAs focus on a more specific range of issues with a view to understanding them more completely and in greater depth. Those carrying out the appraisal already know something about the area they are working in, and perhaps about the topic of the appraisal, but they want to find out more.

A topical RRA could focus on a particular issue uncovered during the course of a more general, "exploratory" RRA. It could aim to clarify contradictions in data from a larger, formal survey. It could directly address problems in the particular field of concern of a development agency (such as aquaculture).

BOX 8
USES OF TOPICAL RRAS

- *Researching specific features* -
  To rapidly assess a specific feature of local conditions, for example the nutritional importance of fish, researchers can use a focused RRA to obtain a qualitative picture of fish consumption in a particular area or among a particular group of people
  Identifying participants in trials -
  To organise on-farm trials of new crops or cropping practices a project might carry out a topical RRA to identify farmers and plots where such trials could be carried out.
  Understanding resource-use -
  Projects concerned with natural resource planning use RRAs to understand the use-patterns of particular sets of resources.
  Testing hypotheses -
  Researchers or development workers use RRAs to test a particular hypothesis or idea which may have been suggested by their work..

The teams carrying out topical RRAs can be smaller than those involved in exploratory RRAs. But even if the focus is more limited, the need for a variety of different points of view is just as important if a systematic understanding of problems is to be achieved. Particularly where the people involved are already familiar with the area and have well-developed ideas and opinions about local conditions, specific efforts should be made to involve new people who may be able to provide an important alternative viewpoint.

4.3 Monitoring and Evaluation RRAs

RRAs can also be used for the monitoring and evaluation of on-going activities. Such RRAs could be very similar to topical RRAs, taking a selected range of issues and assessing the impact of development activities on them. They could also be more exploratory, looking at conditions in general and trying to understand how they have been affected by a project or programme.

Many agencies require evaluations which measure the performance of activities in quantitative terms. But RRAs can be used to check on whether the parameters measured by an evaluation might exclude some important qualitative factors. They can provide corroboration of other methods of evaluation.

BOX 9
USES OF MONITORING AND EVALUATION RRAS

- *Performance review* -
RRAs can be used to rapidly assess the progress and performance of a development activity, even on a routine basis or combined with quantitative monitoring.
Qualitative monitoring of impacts -
RRAs can be used on a regular basis to monitor qualitatively the impacts of an activity or project on beneficiaries or on other people not targeted by the activity.
Trouble-shooting -
RRAs are well-suited to checking on possible problems in a development activity and investigating difficulties in implementation.
Qualitative evaluation -
An RRA could be used as part of the evaluation of a project, testing the opinions of a large range of interested groups regarding the effects of development interventions, rather than trying to measure a few parameters.

4.4 Participatory RRAs

The "definition" of Participatory RRAs has become progressively less clear as Participatory Rural Appraisal (or PRA) has developed as a distinct methodology. The absence of the term "rapid" is significant as PRAs are often very time-consuming. For the purposes of this document, the discussion of Participatory RRAs is included in the discussion of PRA below.

However, attention needs to be paid to the terms used by some practitioners. Some writers and field workers would make a clear distinction between a Participatory RRA (which is fairly rapid) which emphasises the elements which encourage participation by local people, and a PRA which is completely oriented towards initiating a process of participatory planning where local people are the main actors involved. The difference can be very important. If the two categories are placed together in this paper it is principally with a view to simplifying the presentation for people who are working in the field.

5. ADDRESSING AQUACULTURE ISSUES WITH RRA

SUMMARY

For people working in aquaculture, there are numerous issues which they need to understand in order to be able to plan aquaculture activities more effectively. The various elements in the RRA toolkit which can be used to address these different issues are described.

As explained already, an important part of the RRA approach is the use of many tools together during the RRA so that different topics are investigated in different ways by different people. This provides a means of quickly cross-checking information and contributes to a more complete understanding of conditions on the ground .

Many of the tools which make up the RRA "toolkit" can prove useful to people working in aquaculture development whether or not they are in a position to organise more structured RRA exercises involving proper multidisciplinary teams. Taken in isolation in this way, RRA tools are sometimes referred to as "Rapid Diagnostic Tools". These can be thought of as "tricks of the trade" - techniques which people working in the field can use to "structure" their observations and learning when they are talking to people or groups. These can help them make better use of the time they spend in the field.

Whether or not these RRA tools are being used in the context of an organised RRA, certain tools lend themselves better to the investigation and understanding of certain types of issue. This is as true in aquaculture as it is in any other field and this section looks at some of the most important issues which aquaculture workers have to deal with and how RRA tools could help aquaculture workers to address those particular issues.

By approaching these tools from this point of view, there is inevitably some overlap. For example, if aquaculture workers are trying to understand how local people divide their labour and time between different activities so that they can understand how new aquaculture activities might fit in, they **should** also be looking at the **gender** aspects of time-use and labour so that they can specifically understand the possible impacts on women. So there is obviously overlap between the sections on **labour and time-use** and the sections on **gender issues**. Another example might be **seasonality** which is an important aspect of almost **all** issues in rural communities.

Understanding the connections between different sets of issues is one of the strong points of the RRA approach which formal questionnaire surveys have greater difficulty in accommodating. But some other issues, such as **incomes**, **demography**, **details of land owned** (as opposed to **forms of land tenure**) and precise **measures of environmental factors**, all of which are important to aquaculture workers, are **not** easily dealt with using RRA tools.

So this section concentrates on what RRA is good at. For more information regarding specific RRA tools mentioned here, readers can refer to Appendix 2, which reviews some of the principal tools and gives illustrations.

5.1 Land and water tenure

Arrangements for the tenure and use of land and water resources have an important influence on the feasibility of aquaculture.

Land tenure

Where aquaculture requires the excavation of ponds, the labour and investment required are only justifiable where tenure of the land area involved is reasonably secure in the long-term. Rural people concerned with minimising risk and maximising returns on their labour (which is often the only resource at their disposal) will clearly think twice about undertaking the excavation of a pond and investing in aquaculture if there is a risk that the land on which the pond stands could be taken away from them.

Box 10 gives an example of how analysis of existing conditions can help predict what impacts on land tenure might result from an expansion of aquaculture in the future. The names of different forms of land tenure need to be listed (taxonomies

BOX 10
CHANGES IN LAND TENURE IN TANZANIA

In Iringa District in south-western Tanzania small-scale aquaculture was being proposed as a possible means of compensating communities who had lost access to fisheries resources in local rivers as a result of the creation of a national park. In the villages in question, land is normally held by the village with the distribution of use-rights decided upon by the village authorities. In practice, this has generally meant that the rights to cultivate land have been given to the person who opens up land in the bush. This arrangement is widely regarded as the "norm" and it is commonly stated that land is not owned privately and, if a particular *shamba* or parcel of cleared land falls into disuse for 3 or more years, the village can take it back and redistribute it. Such an arrangement could discourage aquaculture development. However, during a ranking exercise in which local people indicated the distribution of land holdings inside an irrigation scheme among different people in the village, it became clear that tenure arrangements for some land were very different. With the increased diffusion of irrigated crops, the value of irrigated land has risen and, once such land is allocated to individuals, it is reported to be almost impossible for the village to reclaim it, even where it is not being utilised. This is said to be especially the case where "improvements" have been carried out, such as the planting of trees and, in some locations, the digging of fish ponds. In practical terms, where an individual or household plant trees or excavate irrigation channels to a particular parcel of land, that land becomes their private property although nominally it remains "village land". This principle was said by some to be leading to an increasing concentration of good irrigable land in the hands of those with the resources and capital required to "improve" it. Pond excavation seemed to be developing as another means of "improvement" which could lead to more stable tenure for individuals but fewer land resources for the community.

and classifications), the locations of different types of tenure mapped and the history and changes documented through interviews and timelines.

Water tenure

Secure access to water resources is a fundamental requirement for aquaculture and the mechanisms which govern access and control of water need to be well understood by aquaculture planners. New activities which involve a change in patterns of water use need to take existing mechanisms into account.

Detailed mapping of water control areas and analysis of the institutions governing them can enable planners to predict the impact of new or extended water uses such as aquaculture and where those impacts are most likely to fall.

TABLE 2
LAND AND WATER TENURE
RRA TOOLS

land tenure	• secondary data review - community records, land registry, laws on land tenure, land reform measures • community ranking / stratification by landholding • taxonomy of land tenure arrangements • mapping of land holdings / tenure arrangements • timelines indicating major changes in land tenure arrangements / land reform • key informant interviews - major landholders, pond owners
water tenure	• secondary data review - water department records, laws on water use, fisheries laws • mapping of catchments, water use, water resources • ranking of water uses • timelines indicating major changes in water use / tenure • key informant interviews - water users, fishers, pond owners

In areas where water is more scarce, careful assessment is required of the alternative uses of water resources and whether aquaculture represents a good use of whatever water is available. Ranking exercises can help planners to understand how people decide about water use and look at the priorities of different groups regarding drinking, bathing, subsistence agriculture, vegetable farming or cattle watering.

5.2 Environmental factors

The assessment of the environmental suitability of a particular area for aquaculture obviously plays a key role in the early stages of any aquaculture development programme. Water and land availability and the suitability of soils and drainage patterns have to be assessed accurately as a basis for any further action. Often in the past, technical assessments like these have been carried out in isolation but, if they are incorporated into an RRA, local people's understanding of their own environment can be taken into account and past changes and processes better understood, adding to understanding of the current situation.

TABLE 3 ENVIRONMENTAL FACTORS RRA TOOLS	
agro-ecological zoning	• mapping of land and water characteristics • transects showing land / water use, characteristics, problems, potential • decision-trees regarding land / water use • historical maps and transects showing changes in land / water use
water availability	• mapping of seasonal availability of water, extent of waterbodies • seasonal calendar showing changes in water availability, demand • timeline showing historical changes in water availability

Agro-ecological zoning

The various mapping and transect techniques used in RRAs can help aquaculture planners to understand both the key ecological characteristics of the area under study and local people's own classifications of land Where freshwater pond aquaculture is being considered, alternative land-uses and the relative risks and potential of different types of activity, including aquaculture, can then be analysed in more depth.

In coastal areas, zoning exercises might be extended into coastal waters where other fisheries activities might be affected by aquaculture development on shore. Where "waste land" or marginal areas such as mangrove swamps are being considered for aquaculture, mapping and ranking carried out with different local groups can focus attention on specific areas and reveal uses and users that may not have been previously suspected.

The comparison of the ways in which different ecological zones are used can also reveal much about people's priorities and decision-making.

Water availability

Mapping and zoning can also be used to understand the water supply situation and provide information about upstream users of the water required for aquaculture, as well as indicate downstream impacts.

Seasonal changes in water availability are often very important. Seasonal water shortages may not necessarily exclude aquaculture as an option but they will radically affect its viability and decisions regarding the types of aquaculture which are appropriate. Even where water supplies are apparently adequate, the frequency of "dry" years needs to be ascertained as they may seriously affect long-term viability.

Longer-term changes and processes affecting water supply, such as land degradation in catchment areas, can be checked during an RRA using timelines and historical transects to see how rapidly changes are occurring..

5.3 Seasonality

A major weak point in most appraisals (and surveys) is that they seldom last for long enough to be able to observe directly how conditions change from one season to another In most rural communities, seasonality normally affects **all aspects** of the community, its environment and the livelihoods of the people who live there. Ideally, RRAs would be repeated at different times of the year to allow researchers and planners to experience the major seasonal differences directly. In some RRAs, involving small teams, this might be possible. But large exploratory RRAs aiming at identifying aquaculture activities are unlikely to have the luxury of being able to return to the field at a later date.

TABLE 4 SEASONALITY RRA TOOLS	
seasonal analysis	• seasonal calendars showing activities, labour demand, income, food supply, water supply, flooding, problems • mapping of seasonal variables such as water supply, floods, fish sources

This means that RRA teams have to rely on their awareness of the importance of seasonally in order to draw out as complete a picture as possible from their discussions with local people.

The preparation of an in-depth seasonal calendar showing the activities undertaken by different groups of people, the flows of income, consumption and expenditure, food supply, labour supply and out- and in-migration should all be regarded as of key importance in any RRA. For aquaculture, understanding seasonal changes is crucial to determining where and when aquaculture activities might fit into the livelihood strategies of rural households, how it might be combined with other elements in those strategies and whether it is the best option.

Seasonal calendars prepared with local people can provide a useful focus for discussions about activities and livelihood strategies. Calendars can be represented in various ways depending on how local people are used to representing time. Possible alternative ways of measuring and dividing the year - by season, lunar or solar months, by agricultural activity - all need to be taken into consideration.

5.4 Target group identification

Different development programmes encourage aquaculture for very different reasons. In some cases, the potential of aquaculture as an income-generating activity has been emphasised, particularly where there is a strong market for

cultured fish species. In other cases, interest in aquaculture has focused on improving food security among poor rural households. Unfortunately, in the past, these two very different sets of objectives have frequently become confused.

Part of the reason for such confusion is a poor understanding and identification of the "target groups" for aquaculture development activities. Rural populations are frequently thought of by planners as being homogeneous and uniform with largely similar interests and motivations. Differences of gender, wealth, social and economic status, culture and occupation are not always properly taken into consideration with the result that interventions are misdirected or inappropriate to large sections of the population.

TABLE 5
TARGET-GROUP IDENTIFICATION
RRA TOOLS

identification of social, ethnic, occupational, and economic groups in the community	• Venn diagrams indicating different social, ethnic, occupational and economic groups in the community and the overlaps between them • wealth ranking using wealth criteria and classifications elicited from local people • mapping of spatial distribution of different groups through community (social, wealth, ethnic and occupational group mapping) • specific identification of marginal groups and reason for marginalisation (poor resource-access, gender, age, ethnic or social status) • timelines of community development (arrival / departure of different groups, changes in activities)
assessment of target-group needs and capabilities in aquaculture	• focus group discussions of problems, needs and priorities with ranking exercises • ranking of priorities regarding land-use, water-use, crops, income-generation, food supply • decision-trees over resource use • ranking of priorities regarding fish - consumption, income, seasonality • assessment of current farming and livestock practices, water management
assessment of access to required resources for different target groups	• mapping of land and water use, access to different resources • decision-trees for credit, marketing, agricultural inputs • Venn diagrams of institutions and authorities governing access to water and land resources • focus group discussion for marginal groups (poor, women) of access to support mechanisms - extension services, credit, marketing.
gender issues	• daily / seasonal activity charts for women from different social, ethnic, occupational and economic groups - identification of different levels of activity by different groups of women • mapping of resource-access for women • analysis of seasonal time-use for women -

Aquaculture planning can easily be conditioned by general principles applied by rural development organisations which do not take into account the special needs of aquaculture or the real priorities of local people with regard to fish production.

A typical example might be an integrated rural development programme with an established strategy of targeting the "poorest of the poor" for all its activities which has an aquaculture "component". This could encourage aquaculture planners to concentrate on developing fish culture for poor households even though these households' priorities for land, labour and water use lie elsewhere and their capabilities for the effective management of aquaculture are limited.

Similarly, in programmes where improving food security for poor households is a priority, aquaculture workers might be tempted to encourage fish pond development for "subsistence" purposes even though such activities were uneconomic and unsustainable in the long-term and food security might have been better served by encouraging wealthier people with entrepreneurial skills to produce large quantities of cheap fish for the local market.

Use of the RRA techniques mentioned in Table 5 could help aquaculture workers in such circumstances to better identify and understand different potential target groups. Local people's own classifications can be used to define different sub-groups in the community. Divisions into clan or family groups may be of far more importance than "horizontal" divisions between different social and economic strata.

5.5 Social and cultural factors

Beliefs and customs

Local beliefs and customs regarding water and fish will influence people's interest in and attitude to aquaculture. In the space of a short appraisal, it may be difficult to come to a detailed understanding of these beliefs and how they could affect proposed aquaculture development.

RRA teams may have to rely on a detailed search of secondary sources, particularly the anthropological literature, in order to obtain more information on local beliefs and customs. People with close contact and experience of the area can be included in the RRA team and provide first hand knowledge, but frequently secondary data will be the only source available for understanding these factors in detail. The current relevance of such accounts can then be cross-checked during the course of the subsequent RRA.

Levelling mechanisms

In many rural societies where resources are in short supply or subject to acute seasonal fluctuations traditions regarding the sharing of wealth ensure that whatever resources are available provide for the whole community. Such mechanisms may take the shape of social pressure against personal accumulation of wealth or simply a tradition of distribution of surpluses among relatives and neighbours. If such

mechanisms exert a strong influence on people's economic behaviour, it may be difficult to encourage aquaculture as an **income**-generating enterprise at the individual or household level.

TABLE 6 SOCIAL AND CULTURAL FACTORS RRA TOOLS	
beliefs and customs	• secondary data review - anthropological literature, nutrition studies, mission records • key informant interviews - religious and traditional leaders, traditional healers, midwives
levelling mechanisms	• flow -charts of income use • ranking of priorities for expenditure and consumption
motivations and priorities for wealth generation	• decision-trees over resource use, income-generation, investment • ranking of priorities for resource / land use, expenditure

Social mechanisms such as these are not always evident to outsiders and may require a careful analysis of the decisions which people make over resource-use and of the ways in which surplus resources are distributed.

Motivation and priorities for wealth generation

Many aquaculture development activities have been regarded as "failures" because, although many rural people may have taken up the idea, they do not seem to manage their ponds as "economically viable" units But such "failures" may have more to do with aquaculture planners' poor understanding of the motivations behind people's involvement in development activities in general, and fish culture in particular.

The reasons why individuals or households choose to adhere to a development initiative or take up a new activity can be diverse, even within the same community and it cannot be taken for granted that apparently simple economic logic is a sufficient justification. Desire to be associated with "development", the social status associated with pond ownership, desire to have a perennial source of fish for household consumption or for ceremonies, even purely aesthetic reasons could all play a role depending on the culture and social setting of the activity. They can also strongly affect the way in which people manage their ponds. If households excavate ponds so as to have a stable supply of fish for the household they will not be interested in the sort of management regime which maximises production but requires complete harvests of the pond at fixed intervals.

A careful look at people's decision-making processes and the way in which existing resources are used can help to provide planners with clues regarding people's real and potential motivations for becoming involved in aquaculture.

5.6 Gender issues

Gender is one of the factors that is most easily ignored given the tendency of many fisheries and agricultural development agencies to be male-dominated. Quite apart from the sex of development workers, it is often assumed that any activity which produces income will inevitably benefit everyone in a community or household when, in fact, there are frequently important variations in distribution along gender and age lines.

The gender implications of aquaculture development can be complex and many of them cannot realistically be understood within the time-frame and using the methods of an RRA or PRA. A crucial part of the gender dynamics of a community take place within the walls of a household and may be extremely difficult to understand or even see without long-term close contact and participant observation

However, all the range of elements and factors which are taken into consideration in an RRA need to be considered from the point of view of gender as most will have a gender dimension which will have some bearing on decisions over development activities.

Certain specific RRA techniques can be used which are especially relevant to achieving a better understanding of gender issues. Most of these can also be related directly to the requirements of aquaculture planners

TABLE 7
GENDER ISSUES
RRA TOOLS

time-use	• daily activity charts for men and women • seasonal calendars for men and women's activities
women's access to resources	• mapping of resources used by women • seasonal calendars of resources use by women • ranking of resources and their usefulness by women • focus group discussion of women's resource use • taxonomies of resources utilised by women
food distribution	• focus group discussions with women on consumption and distribution patterns within households • 24-hour nutritional recall for individuals (as opposed to households)
decision-making	• decision-trees for different household and community-level decisions
control of income	• flow charts of income from different sources • decision-trees for use of income from different sources • ranking of priorities for expenditure • ranking of income sources • focus group discussions with women

Time-use

Proper time-use studies are likely to be outside the scope of an RRA as they require actual observation and timing of daily routines. However, a more superficial analysis of daily routines can usefully be carried out during an RRA and a reasonably detailed picture of differences in activities between men and women in different social groups built up.

Daily activity charts have to be collected for different seasons during the year as the differences between levels of activity according to season and stage in the agricultural calendar can be dramatic.

The key function of the analysis of daily activities is to see whether there is scope for new activities which will make demands on labour either for men or women and when during the year such scope exists. Daily activity charts can also help in determining which family members are likely to be assigned different responsibilities in aquaculture activities. For example, where women are routinely involved in the feeding of small livestock around the homestead there is a good chance that they may end up taking responsibility for the management of ponds if these are also close to home.

Other priorities regarding the use of water near to the home may also become immediately apparent through analysis of the time expended on household tasks such as water fetching and washing. Possible negative impacts on women caused by changes in water use as a result of aquaculture activities also need to be taken into account.

Women's access to resources

The resources women use, their modes of utilising them and their relative access to those resources is frequently quite different from men's. The reasons for such differences can vary immensely from culture to culture. There may be taboos on the involvement of women in the exploitation of specific resources or men may simply exclude women in order to monopolise access for themselves. Women may

BOX 11
AQUACULTURE IMPACTS ON WOMEN IN BANGLADESH

In Bangladesh, naturally-flooded ditches and borrow-pits near homesteads are important for women both as a seasonal sources of fish and as an accessible sources of water and bathing. Access to such ditches has generally been open or very loosely controlled and their vicinity to homesteads mean that they are especially important for women whose freedom of movement under is customarily limited. Now, in some areas where aquaculture is developing rapidly, these homestead ditches, or *maital*, are being rapidly converted into fish ponds or holding tanks for fingerlings. This entails the closing of access to those ponds for women and other people living around them. Some households, with the capital to invest in aquaculture and to lease out such ditches and ponds, are considerably improving their economic situation. But for many women, particularly from poorer households who may not have owned any of the ditches but simply used them, it has meant the loss of yet another open-access resource. In some households which did own ditches, their development for aquaculture has meant that they have moved fully into the sphere of men's activities and both access and the benefits generated are wholly controlled by men.

exploit certain resources because they are accessible and can be readily reached during the course of their daily work routines. Women's tenure of resources is frequently limited or uncertain and women may rely to a greater degree on common or open-access resources.

The differences in access to resources between men and women can be understood better through careful mapping of women's patterns of resource use, taxonomies of the resources which they exploit and ranking of their resource priorities. These can then be compared with similar information obtained from men in the community. The seasonal dimension of resource use and access for women requires special attention as it can have an important influence on women's work load.

The extent to which women are able to lay claim to, or at least gain access to, key resources such as land and water will have an important bearing on the impacts of aquaculture activities. The encouragement and expansion of aquaculture can often lead to a change in status and value for water and land resources which can have important implications for groups like women whose hold on such resources is frequently tenuous and dependent on others. Box 11 gives an example of this sort of impact which highlights the need for an understanding of differences in men and women's access to resources.

Food distribution

Where aquaculture activities aim to improve food security and the nutritional status of rural households, it cannot be assumed that nutritional benefits will be evenly distributed within households. Frequently first choice of the best and most nutritious foods is given to the heads of households and those regarded as the most important livelihood-earners at the expense of women and children.

As with many intra-household factors, it may be very difficult to achieve a proper understanding of intra-household distribution of food during a short appraisal but focus group discussions with women, particularly if they are led by experienced gender specialists on the RRA team, can provide important indications.

Decision-making

Decision-trees prepared in consultation with women can help to clarify the extent to which women in a community are able to make autonomous decisions and in which spheres of activity. This can be important where aquaculture activities are being considered specifically for control and management by women. The factors which are likely to influence women's ability to make independent decisions need to be understood and taken into account.

Control of income

Flow charts of the way in which income from different sources within the household is used can be constructed to see who makes decisions about income distribution and use. This can provide indications of how income generated by aquaculture activities is likely to benefit different household members.

5.7 Age issues

The way in which the age of a person or the members of a household can affect the decisions they make and their potential interest in new activities such as aquaculture is frequently overlooked. The use of RRA to address this set of issues has not been extensively documented to date but it is a factor which requires attention and can be of some importance for target-group identification and attempts to distinguish discrete social and economic groups within the community.

In many poor rural communities, the relative wealth status of individual households may well be more connected with the age of household heads than the wealth of the family. Young, newly formed households may be "poor" in the sense that they have few resources of their own and have to support young children. Newly married men may be obliged to provide labour for fathers-in-law leaving little time for accumulation of wealth. As children grow and join the labour force, the economic position of many households may improve and then decline again if offspring later leave their parental homes. The precise patterns will depend on local conditions and culture.

The collection of "life histories" from older informants can help RRA teams to understand the patterns of household development which prevail in a particular area and the effect these patterns might have on wealth strata within the community.

5.8 Institutional issues

The form and scope of activity of different institutions can affect aquaculture development activities at two different levels.

Community-level
At the community level, traditional and non-traditional institutions can play a determining role in the way in which resources within the community are controlled and distributed and in making decisions. Without an understanding of how these local-level institutions work, who their members are and the interests they represent it may be difficult to plan any form of effective development activity in the community.

RRAs can look at the different institutions in the community and determine their spheres of interest, membership, decision-making mechanisms and the extent to which control of institutions resides with different social, economic or ethnic groups. Such information can be represented in Venn diagrammes in order to clarify institutional spheres of influence, overlaps in and conflicts of interest.

This can help aquaculture planners to identify the key institutions concerned with issues such as land tenure and distribution, control of water resources and the distribution of development resources within the community.

Local administration

The structure and division of responsibilities in local government can constitute a major obstacle to the effective management of aquaculture activities. Some of the environmental factors which determine the feasibility of aquaculture may cut across administrative boundaries (flows of water being a case in point) and a project dealing exclusively with one section of the administration may find itself affected by activities covered by another. The boundaries for different aspects of administration may not necessarily be the same i.e. water management areas may be quite different from the areas covered by fisheries or extension services and this can lead to confusion and duplication if it is not taken into account.

Wherever possible, responsible members of all the institutions concerned need to be included in an RRA team as they will be the best people to inform the process regarding administrative responsibilities and coverage. Where there are contradictions and overlaps, flow-charts and decision-trees can help to clarify how mechanisms work on the ground.

TABLE 8
INSTITUTIONAL ISSUES
RRA TOOLS

community-level institutions	• Venn diagrams showing membership, spheres of influence, overlaps and relative importance of different community institutions • decision-trees for land distribution, water use and other community-level decisions
local administration	• mapping of areas of responsibility • Venn diagrams of spheres of responsibility • flow-charts of organisational structures • key informant interviews with local extension officers, local officials
development support agencies	• Venn diagrams showing areas of activity of different development agencies, overlaps, membership • local people's ranking of interventions by local agencies according to effectiveness, frequency • decision-trees for local people regarding contacts with local institutions, requests for assistance • ranking of problems and priorities of different institutions and agencies • comparison of problem hierarchies of different agencies
effectiveness of aquaculture support agencies	• local people's ranking of interventions by aquaculture extension services by effectiveness, frequency • decision-trees for aquaculturists showing reactions to different problems - disease, input supply, etc. - who they contact and why • comparative ranking of effectiveness of aquaculture and other support services - agriculture, forestry, fisheries, etc.

Development support agencies

Aquaculture development has been hampered by the fact that it has commonly been regarded as a sub-sector of fisheries when, in reality, many aquaculture activities are closer to farming than to fishing.

An integral part of an RRA looking at the feasibility of aquaculture development activities in a particular area would be the assessment of the institutional context of aquaculture development and the ability of existing institutions and agencies to effectively support it. Certain basic factors such as the availability of staff with aquaculture training and the presence of suitable technical support need to be taken into account by planners.

Certain RRA techniques can assist in understanding the real capabilities of existing services to work at the community level and the degree to which existing structures are functional. Focus group discussions in communities can be used to assess people's attitudes and perceptions of agencies and institutions and specific interventions ranked. Local people can also be asked to rank the types of services which they need from support agencies.

People's interest in aquaculture will be strongly conditioned by their past experience of it and perceptions of the agencies involved in supporting it. If past aquaculture development activities have led to conflict or have not lived up to expectations, interest in new aquaculture involvement is likely to be low. RRA teams looking at aquaculture need to hear people's accounts of past activities and any problems which may have arisen.

5.9 Markets and demand

In order to develop on a wide scale, aquaculture requires that the marketing arrangements for fish and the demand for the species being produced be well-developed. Where the marketing system is limited and demand for fish is not strong, aquaculture is likely to remain a relatively marginal activity. Assessment of the market is therefore a critical part of the overall assessment of the feasibility of aquaculture.

The importance of understanding markets goes beyond the simple issue of whether or not fish farmers will be able to sell the fish they produce. It also has implications for the long-term sustainability of aquaculture once the support provided by a particular project is withdrawn. In rural areas, the channels through which produce is sold are also likely to become the source of inputs such as fingerlings, fertilisers, lime and perhaps credit. The flexibility of existing marketing systems and their ability to develop in response to changes in the supply of commodities and the demand for inputs needs to be assessed.

TABLE 9 MARKETS AND DEMAND RRA TOOLS	
market assessment	• classification of fish species according to price, demand, buyers • ranking of fish species by demand • mapping of range of operation of fish buyers - points of purchase and points of sale • mapping of range of movement of consumers to purchase fish • identification and ranking of market problems by different groups - retailers, wholesalers, consumers • approximate assessment of volume of fish traded at different levels - retail and wholesale • seasonal chart of variations in price, fish volume, species, demand, supply, source • key informant interviews with fish traders at different levels - retail, wholesale, shipping, freezing

For rural aquaculture schemes which aim to produce fish for local markets, up to date price information may need to be collected directly in local market places. Prices may be different from those quoted in national level data which are more likely to be based on urban wholesale markets. Prices may also be subject to considerable seasonal fluctuation which may affect the economic viability of aquaculture.

5.10 Fisheries credit and marketing systems

In areas where aquaculture has a sufficiently strong basis to be self-sustaining, marketing mechanisms will often play a key role in the channelling of resources, particularly credit, into the system. The linkage between marketing and credit provision is common in many rural commodity markets and particularly in fisheries.

This linkage has commonly been regarded negatively by fisheries development workers. This is because the perishability of fish and the necessity among fishermen to sell their produce quickly makes them vulnerable to price manipulation and exploitation by those buying fish from them. Cases of severe exploitation, particularly of poor artisanal fishermen by fish buyers and credit providers are common.

However, setting up alternative systems for providing credit in a sustainable fashion to small-scale fisheries is often difficult. Even when apparently viable credit systems have been created, dependent relationships between producers and "middlemen" frequently persist. Often this is due to the extreme flexibility of informal systems, the links of kinship and patronage which often exist between the various actors in these systems and the security which they can offer to rural producers, features which are not easily reproduced in formal mechanisms.

TABLE 10 FISHERIES CREDIT AND MARKETING SYSTEMS RRA TOOLS	
assessment of credit and marketing systems	• flows charts indicating flows of fish and credit • decision trees for fishermen or aquaculture producers over where to sell produce and who to sell to • charts showing complexity of marketing system and degree of specialisation

Informal credit and marketing networks have often extended to include aquaculture activities as well as fisheries. The presence of such systems channelling credit to aquaculture and assuring a ready market for aquaculture produce can be a useful indicator of the commercial viability of aquaculture activities.

Investigation of credit flows can be notoriously difficult as rural people are frequently reluctant to discuss indebtedness. Indirect approaches using RRA techniques can provide a complex view of existing mechanisms of credit provision and marketing so that new mechanisms can take the current situation properly into account

5.11 Food or cash

Small-scale aquaculture projects have frequently "failed" due to lack of clarity over people's priorities regarding pond fisheries production. Many aquaculture projects, particularly in Africa, have ostensibly targeted the "poorest of the poor" on the grounds that they have the greatest food security problems and therefore will benefit from an improved supply of high-quality protein from cultured fish. An alternative approach to the same issue has often been to encourage the culture of low-value fish in order to improve the availability of relatively cheap protein in local markets.

TABLE 11 FOOD OR CASH RRA TOOLS	
assessing food security priorities	• ranking of foods by importance, preference, availability, cost • local classification of foods - criteria for classification • seasonal charts of food availability • descriptions / observations of "typical" meals • decision-trees regarding sale or consumption of other foods - staple grains, livestock, fruits
rapid nutritional assessment	• 24-hour recall of food consumption • using current levels of consumption as a basis, comparative variation of food consumption through the year

Projects based on these premises have often found, in the first instance, that most of the fish produced is converted into income instead of being consumed and, in the

second instance, the culture of low-value fish is rapidly replaced by high value species as pond owners, logically enough, maximise their benefits by producing higher-priced fish.

A clearer understanding of local people's priorities for food security and consumption patterns can help planners to avoid these "problems". Where there is some capture fishing being carried out, people engaged in "subsistence" fisheries can be asked to explain how they dispose of catches to distinguish the quantities and species which are sold as opposed to consumed and why.

Clarifying local people's ways of classifying different types of food, including fish, is extremely important if subsequent more detailed study of consumption patterns is to make sense. Nutritionists might readily assume that patterns of fish consumption should be compared with those of other animal proteins such as meat and chicken whereas, in many areas, fish may be regarded above all as an accompaniment for the staple food. In such situations, local people may compare fish as food with vegetables rather than with animal proteins. Ranking exercises carried out during an RRA can help in this respect as they can elicit local classifications and enable nutritional assessments to be phrased in terms readily understood by local people.

5.12 Labour and time use

Aquaculture frequently represents a entirely new component in farming systems. This not only means that it places a fresh set of demands on the resources available to rural households, it also places demands on the time of household members. All too often, new aquaculture activities have been proposed on the grounds of their technical feasibility without considering the availability of labour among household members to carry out key tasks. Where the labour requirements of a new and potentially risky activity, such as aquaculture, coincide with seasonal peaks of labour demand for other, more familiar tasks, the latter are liable to get priority.

TABLE 12
LABOUR AND TIME USE
RRA TECHNIQUES

labour patterns	• daily activity charts • seasonal calendars of activities and labour demand • detailed accounts of activities on a specific day • decision-trees regarding daily activities - i.e. work in own fields / hired labour
gender issues in labour and time-use	• daily activity charts for women • seasonal calendars of women's activities and labour demand • detailed accounts of daily activities • listing of different women's activities • classification of women's activities and criteria

Existing patterns of time use therefore have to be carefully analysed in order to understand when and where local people might have periods of relative under-employment when time could be devoted to a new activity without impinging on other activities or creating an excessive work load.

Gender issues in labour and time use

This careful analysis of time-use is particularly important for women in rural communities. Much of the reproductive work carried out by women in order to maintain the household is not readily observed or is frequently regarded as marginal or absorbing only small amounts of time. Activities such as child care and the collection of water and firewood are easily glossed over as relatively unimportant although they can sometimes consume large proportions of the day for women and children.

Where aquaculture activities are to be located near to homesteads, there is a good chance that many of the routine tasks will be carried out by women. This means that the existing demands on women's time have to be carefully analysed.

5.13 Conclusion

No review of aquaculture issues can be exhaustive - the kinds of problems, possibilities and the issues they raise vary with every single location where aquaculture workers have to work. The issues highlighted above are intended to give an idea of how RRA could be applied to some of the more widespread and important issues which aquaculture workers encounter.

But it needs to be remembered that RRA developed out of practice in the field where development workers tried out new approaches which they thought would work, saw which ones actually **did** work, discarded others, developed what was useful and, in the end, thought out ways of putting different techniques together into an "approach". Aquaculture workers need to do the same. If there is something useful which has come out of RRA practice it is that development workers should not take "standard" approaches for granted but should always question whether they are appropriate and what other approaches might be better.

The same goes for RRA - an aquaculturist might try getting people to rank members of the community according to wealth and find that respondents simply do not respond either because they do not understand what is meant by wealth or they feel uncomfortable about making such comparisons. In which case insisting on trying to come up with a ranking simply because the activity is called "RRA" would be as much a waste of energy as giving written questionnaires to be filled in to people who cannot read or write.

Experience has shown that those planning aquaculture need to be aware of as broad a range of factors as possible which can affect, and be affected by, their activities. In the same way they need to be as open as possible to different approaches to findings out about those factors and effects - RRA can be one of those approaches.

6. PARTICIPATORY RURAL APPRAISAL

SUMMARY

*PRA uses similar **guidelines** and **tools** to RRA but focuses on the stimulation of participation by local people. Specific techniques are used to encourage greater involvement among people and to enable them to take the leading role in appraising conditions and identifying solutions. The role of the PRA team is to make itself unnecessary as quickly as possible. Various tentative categories of PRA are explained and some of the possible uses outlined.*

6.1 PRA or "Participatory" RRA ?

Among the categories of RRA described in Chapter 4, a fourth category of "Participatory RRAs" was mentioned. In recent years, this form of Participatory RRA has developed as an approach in itself and come to be known as Participatory Rural Appraisal or PRA.

In much of the documentation on RRA and PRA, the difference between the two is not immediately obvious and RRA and PRA are talked about as if they were more or less the same thing. To some extent this is true - the tools and approaches are broadly similar. Participation is an important aspect of RRA as well as of PRA and some RRAs can clearly be more "participatory" than others.

For example, if an RRA is planned to develop a programme that is fully understood by local people, it needs to emphasise those aspects of RRA that encourage the involvement of local people. So there would be more group interviews where a range of opinions were collected, more analysis and discussion carried out in community meetings, perhaps more emphasis on reaching a consensus of opinion in the **community** than among the RRA team. By contrast, in a highly focused, topical appraisal designed by specialists to test out one of their working hypotheses, the scope for "participation" in the activity by local people will probably be considerably more limited.

In the end, whether a particular activity is classified as "RRA" or "PRA" may seem academic. In this document PRA is treated as a **separate** type of activity but this does not mean that PRA is necessarily "completely different from RRA" or that there is one authoritative "definition" of PRA any more than there is of RRA.

The important point is that **some interpretations** of PRA have radical implications for the practice of development in general and these implications need to be fully understood and taken account of. As a result, people using or talking about PRA need to be very careful about what they really mean by the term otherwise the intentions of agencies using this approach could easily be misinterpreted.

For many agencies and organisations, Participatory Rural Appraisal (PRA) is **not** just a tool which enables development planners to learn about rural conditions and consult with local people so that **they** (development planners) can come up with more appropriate and better development plans (this might be thought of as a "Participatory RRA"). Instead, PRA is sometimes regarded as an exercise which transfers the role of planning and decision-making, traditionally taken by government institutions and development agencies, **to the target group or community itself**.

In this interpretation of PRA, outside experts and development workers are no longer the people who have the principal responsibility for analysing and interpreting information and coming up with proposals or ideas for development. Instead, their role in PRA is to encourage local people to carry out their **own** analysis, come to their **own** conclusions and design their **own** development programmes. These would then be facilitated and supported by the relevant agencies as required. This role is generally referred to as "catalytic".

Box 12 highlights the differences between RRA and PRA **according to this interpretation of the two terms**.

BOX 12
POTENTIAL DIFFERENCES BETWEEN RRA AND PRA

RRA	*PRA*
• Responding to needs of development workers and agencies	• Responding to needs of communities and target groups
• More emphasis on efficient use of time & achievement of objectives	• More emphasis on flexibility to adapt to time frame of community
• Communication and learning tools used to help outsiders analyse conditions and understand local people	• Communication and learning tools used to help local people analyse their own conditions and communicate with outsiders
• Focus of RRA decided by outsiders	• Focus of PRA decided by communities
• End product mainly used by development agencies and outsiders	• End product mainly used by community
• Enables development agencies and institutions to be more "participatory"	• Enables (empowers) communities to make demands on development agencies and institutions
• Can be used purely for "research" purposes without necessarily linking to subsequent action or intervention	• Closely linked to action or intervention and requiring immediate availability of support for decisions and conclusion s reached by communities as a result of the PRA

Once again, it must be remembered that this represents only **one interpretation**. In practice, they are widely used almost interchangeably and some people and agencies make little distinction between them. The table is intended as a clarification of **potential** differences between the two approaches which development workers need to be aware of.

In this document, the PRA is taken to refer to the type of appraisal where these differences with RRA are clear.

6.2 PRA - tools and process

Even where it has quite different **objectives** from a RRA, many of the **activities** in a PRA are likely to be very similar. During the initial stages of a PRA, the techniques used by a PRA team to make contact with communities and learn about them are essentially the same as in RRA. A variety of tools can be selected and used in a structured way to learn about the key issues in the community and elicit local opinion and priorities. But the way in which these tools are used in a PRA should then shift - rather than the outside team using the tools so that **they** can get a better understanding of local conditions, the focus of the activity becomes the encouragement of local people to use these tools to carry out their **own** analysis of their livelihoods, conditions and environment.

Generally, PRA carried out in this way is thought of as an initial step in a process of planning in which the community will take a progressively more important role. The process is represented in an idealised form in Figure 12.

Note that the process outlined in Figure 12 is described as "idealised". The processes which PRA sets in motion are complex and can have very far reaching implications which are not necessarily seen in RRA In RRA the objectives and focus of the exercise, and therefore the outputs, can be controlled to some extent by those who are carrying it out and kept in line with their interests and concerns.

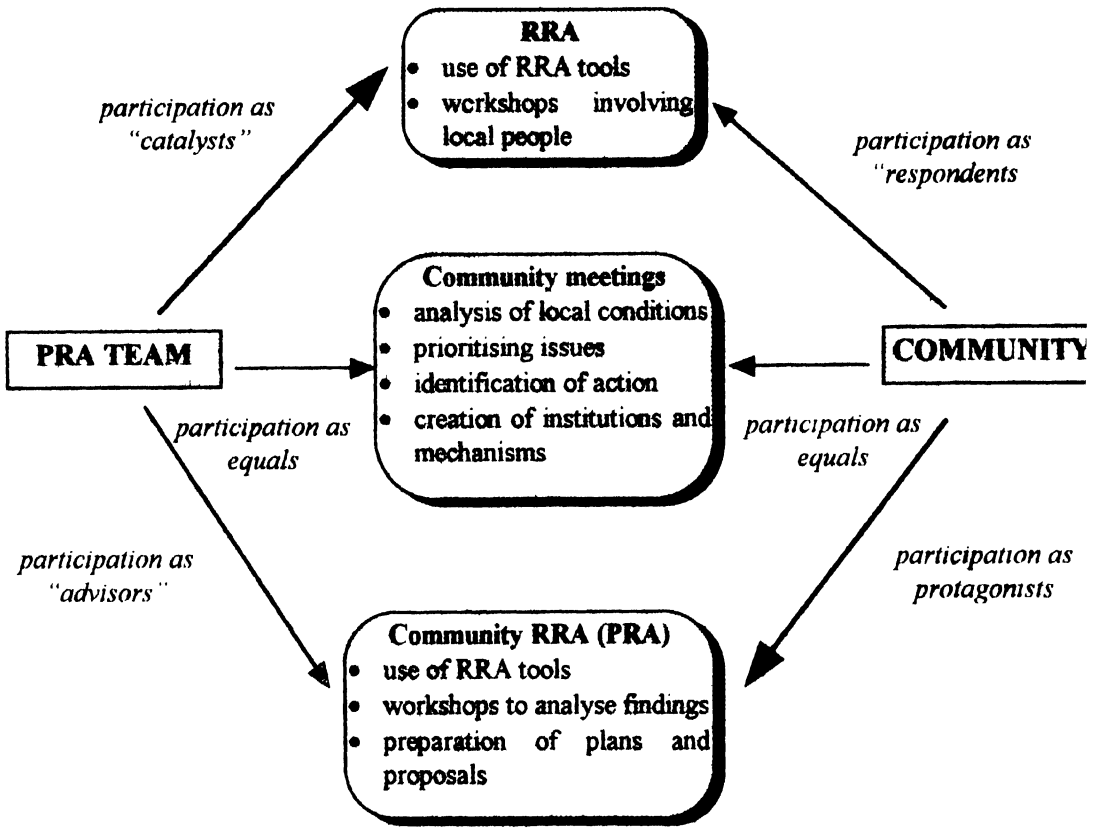
So, for example, an aquaculture agency can carry out an RRA which focuses on aquaculture issues and keep the activity concentrated on those issues, even if related issues may also be addressed. In RRA the boundaries of the activity can be clearly set.

In PRA, these "boundaries" are inevitably less clear because, by definition, they have to be determined **not** by those who initiate the PRA as an activity, but by the communities, target groups or beneficiaries who are the subject of the PRA. It is therefore much more difficult for workers in a development agency to use PRA to achieve objectives which **they** have set, unless those objectives are extremely general, such as "enabling local people to design their own development".

The same goes for the tools which are used in a PRA. In an RRA, the RRA team can clearly decide what the principal issues are, how to investigate them and the tools to use. Interviews about water tenure can be kept focused on **that** subject.

This can also be done in the context of a PRA during the initial phase when the PRA team is learning about the community. But once the activity progresses into the identification and analysis of issues **by the community itself,** it becomes far more difficult for outsiders to direct the activity towards particular goals - that would be a contradiction of the term "participatory".

FIGURE 12
The PRA Process



6.3 Advantages and disadvantages of PRA

The **advantages** of adopting a more participatory approach to development planning have been well-documented although there has been less discussion of the **disadvantages**. The ways in which these advantages and disadvantages might effect aquaculture planning are more difficult to establish as documentation of cases of PRA use specifically for aquaculture are few and far between. One reason for this is that PRAs are generally not specific to any particular discipline but are, almost by definition, part of an integrated approach which might or might not include aquaculture.

However, here the principal positive and negative features of PRA are listed and how these features might manifest themselves for aquaculture workers is mentioned.

Advantages

- ***Identification of genuine priorities for target group***

PRA allows local people to present their own priorities for development and get them incorporated into development plans. Where aquaculture is identified as a priority during the course of a PRA, planners can be more secure that this responds to a real need among local people, whether that be for increased income, better fish supply or more intensive water use and management. The risks of outside planners "imposing" aquaculture as a solution and then discovering that local people are not really interested or committed to its development can be significantly reduced.

- ***Devolution of management responsibilities***

An important goal of PRA is to encourage self-reliant development with as much of the responsibility for the management and implementation of development activities devolved to local people themselves. This can greatly improve the efficiency of development work and eliminate many of the problems regarding proprietorship of development activities at the community level. Particularly for an activity like aquaculture, trials carried out in communities by projects run by outsiders are frequently plagued by problems of mismanagement and theft. This is usually linked to the fact that the community does not actually feel any responsibility for the activity and regards it as a temporary benefit to be exploited for as much as possible while it is there An activity generated by a PRA will usually be managed by the community and the benefits will be clear to them

- ***Motivation and mobilisation of local development workers***

Participation in PRA by local development workers, whether from NGOs, government or other agencies can greatly increase the motivation and level of mobilisation in support of the project or programme of which it is part. Where changes in development approaches are being introduced, such as a shift to a more integrated development planning mechanism, a PRA-type activity which illustrates how these new mechanisms will work on the ground can help to ensure better understanding and commitment by local workers. This is one reason why involvement of people from different administrative and organisational levels can be vital so that commitment is built up right through the chain. Aquaculture workers may not be used to working together with other disciplines. Involvement in a PRA can help them understand the priorities of workers from other disciplines as well as those of members of the community.

- ***Forming better linkages between communities and development institutions***

PRA can assist in forming better links between communities and the agencies and institutions concerned with rural development. This can benefit aquaculture workers by helping them with the monitoring of aquaculture development and environmental issues related to aquaculture. An example might be in a mangrove area subject to environmental regulation but where monitoring is difficult. A PRA which encourages a better understanding of the environmental issues at stake in local communities and develops activities which enable them to benefit from better management could also lead to better monitoring of mangrove exploitation by the communities themselves. PRAs involve intensive interaction between communities and outsiders which can have lasting effects in breaking down the barriers of reticence and suspicion which often characterise these relationships.

- ***Use of local resources***

Where local people have had more say in the design of projects they are also more likely to design activities which make full use of existing resources. In the case of aquaculture this might mean the use of local instead of exotic fish species, the improvement of existing water bodies rather than the creation of new ones or the design of activities which fit into current livelihood strategies rather than creating new strategies.

- ***Mobilisation of community resources***

Greater commitment from the community can also mean greater mobilisation of community resources for development and less reliance on outside inputs. This can take the form of labour inputs, savings or time devoted to management functions.

- ***More sustainable development activities***

This combination of effects will generally lead to more sustainable development activities which are less reliant on support from outside agencies and is technically, environmentally and socially appropriate to local conditions.

These benefits from participation can only be realised where the full implications of participation for the development agencies which are encouraging it have been taken into account and accommodated and the institutions involved are willing to support the sort of long-term changes in social, political and institutional frameworks which proper participation, and PRA, can set in motion. Where this is **not** the case, many of the following **disadvantages** can come into play.

Disadvantages

- ***Raising expectations which cannot be realised***

One of the most immediate and frequently encountered risks in PRA is that it raises a complex set of expectations in communities which frequently cannot be realised given the institutional or political context of the area. This can be due to the political situation, the local power and social structure or simply to bureaucratic inertia in institutions which are supposed to be supporting development. In some cases the intended aim of the PRA may be to deliberately raise expectations "at the grassroots" so as to put pressure on the institutional and political structures above to change. However, not all development agencies are in a position to support such activities and there is a risk that agencies which are **not** properly equipped to respond to PRA-type planning may use the approach inappropriately. Aquaculture agencies might well be encouraged to use "PRA", by donors for example, only to find that they are encouraging local people to participate in planning and decision-making in a society or political framework which positively **discourages** grassroots participation.

- ***Proposal of development plans which participating agencies cannot respond to***

Linked to this first point is the risk that the development priorities which communities identify during the course of a PRA may be ones which participating agencies simply cannot respond to adequately in the technical sense, thus again raising expectations only to disappoint them. This again comes back to the problem

that the "playing field" in PRA has practically no boundaries and this can make the approach inappropriate for sectorally oriented agencies. This would include many aquaculture departments organised along traditional lines.

- ***Risk of "capture" of activities by local interests***

By devolving decision-making responsibility to communities and leaving the identification and planning of activities to them, there is also a real risk that particular elements in communities - the more educated, the wealthiest, those with authority - may find it easier to "capture" the activity and monopolise its benefits. The relative lack of outside involvement in a participatory planning process can make this much easier. Poor people in the community might support "community" decisions which will not benefit them at all because they are supported by their wealthier and more influential patrons. Aquaculture can be particularly prone to this as it is often proposed as a means of making better use of "common" land or water areas. The act of "developing" those areas may bring them into the sphere of influence of local authorities and deprive poorer people of access.

- ***Failure to take account of stratification in communities***

The fact that PRA is often carried out with the community as a whole can mean that stratification within the community, whether by wealth, social status, gender or ethnic group, can often be obscured and ignored. This may happen even though preliminary research in the community has clearly identified that there are strata and different sets of interests in the community. In PRA, decisions about how to accommodate the conflicting interests of different groups have to be left up to the community itself and, while one of the roles of outsiders involved in PRA is to encourage negotiation and arbitration between different interest groups, if the "community" decides that they want to resolve problems by ignoring the interests of the poor and weak, it may be difficult for "outsiders" to do much about it, especially if they are committed to devolving responsibility to the community.

The case study in Box 13 is not specifically related to PRA and **aquaculture** but helps to highlight some of these potential problems in the use of PRA. In this particular example, many of the problems encountered were related to the specific techniques used in PRA, such as public meetings and group activities. While these are intended to help in building consensus in the community and encourage "participation" by as broad a group as possible, this example shows how different communities can react very differently to this type of approach depending on their cultural background and their past experience of outside intervention.

Situations regarded by PRA teams as "informal" may be considered, by contrast, extremely formal by villagers. What can and cannot be said in such a formal setting is generally strongly conditioned by cultural and social factors. Women in many cultures may have great difficulty in speaking or even just in being present in such formal situations. The form of such social and cultural conditioning is unpredictable unless good ground work has been done on the communities involved.

For workers in aquaculture, these types of problem can be very real. Outsiders coming to the community to talk about aquaculture may be seen to represent "development" and this could induce people to support the idea of aquaculture

development in public when in fact, in private, they would regard it as a very low priority.

BOX 13
PRA IN INDIA

On an agricultural project in a tribal area of Western India, PRA was used extensively as a means of initiating a process of participatory planning. This process was supposed to involve villagers from tribal communities in creating their own plans for natural resource development.

During the identification of the communities in which activities were to commence, efforts were made to choose villages which were small, socially homogeneous and without marked factionalism and with "supportive" leaders.

In some locations, the use of PRA was effective in encouraging communities to undertake their own analysis of local resource-related problems and potential solutions. Considerable consensus was achieved within the communities and a basis laid for continuing support for the project and its activities .

In other communities, problems in the use of PRA soon became apparent . In one village, a PRA team had to leave the community after only one day having been unable to do any of its intended field work. Local people were openly hostile and extremely suspicious in spite of the team's efforts to put them at ease.

Some of the issues raised by these difficulties were seen to be common to the approach as a whole. The process of "building a rapport" between the project and its intended beneficiaries was seen to be more complex than originally thought. Tribal people were strongly conditioned by previous experience of "outsiders" to be very suspicious of their motives. These suspicions were seen not to be necessarily relieved by the attempts during PRA exercises to establish an "informal" and open relationship. On occasions the PRA teams' efforts to be relaxed and "participatory" only increased local suspicion regarding their motives and real interests.

This led to the conclusion that in many communities an extensive period of low-profile rapport building consolidated by concrete manifestations of a project's commitment to a community would be required **before** a PRA could be effective.

Problems were also encountered in the use of typical "participatory" -type exercises such as group and community mapping, group context of such "group" activities as "community" opinion transect walks and community meetings. It became clear that the views represented in the frequently ignored the interests and opinions of important groups within the community and represented those of "dominant" groups or "officialised" views.

Although the PRA approach used placed considerable emphasis on creating an "informal" context for discussions, what was "informal" for the PRA team was still regarded as very "formal" and artificial by local people.

Women as a group in all the communities were particularly excluded as a result of this. Strong social constraints normally prevented tribal women from gathering together publicly as they were asked to do during PRAs. Participation by women was also strongly affected by their workload and factors such as age and marital status. Even when women did participate in activities their range of concerns and mode of communication was often so far from what field workers were used to or concerned with themselves that effective participation was limited.

Source : adapted from Mosse, 1995

On the other hand, the fact that the project described in Box 13 was able to identify these problems (which would probably have affected the validity of **any** development planning approach which could have been used) was in itself partly

due to the use of "participatory" methods. The flexibility of these methods allowed the project to adapt its approach to accommodate these issues.

6.4 Is there such a thing as an "aquaculture" PRA ?

Given the shortcomings and difficulties involved in the use of PRA, the question for aquaculture workers is whether or not it is actually of any use for them. It could easily be asked, in fact, whether a PRA specifically oriented towards aquaculture is possible. It would probably be difficult to limit the focus of a PRA purely aquaculture issues. But PRA **could** be used to look at the **context** in which aquaculture is taking place, provided there is willingness on the part of the participating agencies to broaden the potential scope of development activities beyond aquaculture and into other spheres. For many agencies involved specifically in aquaculture development this might be very difficult.

PRA has been used more widely, and often more effectively, by non-governmental organisations (NGOs). NGOs, particularly those based locally, are more likely to have the kind of long-term commitment to working in a particular area or community which can support the kinds of development generated by PRA. Especially where significant changes in the local political and social framework, or where new social, economic or ethnic groups are given a voice and encouraged to participate in decisions about development, the process can be long and extremely difficult. In such circumstances a development agency cannot responsibly start off the process and then leave it to run its course completely without further support. Members of rural communities who have been given new powers, new access to resources and new decision-making responsibilities as a result of PRA-led activities usually need long-term support to ensure that their gains are sustainable

The next chapter looks at how other types of agencies might be able to use PRA, and RRA in certain circumstances, particularly depending on the sort of **planning** framework in which they are operating.

6.5 PRA Teams

PRA "teams" are likely to be more mixed than RRA teams. While, in RRA, the team is still largely envisaged as a group of outsiders trying to learn about a community or area, in PRA the "team" should involve local people as quickly as possible and encourage them to carry out the appraisal themselves. The team should be there to guide and support them and provide them with technical expertise as and when required.

Local people on PRA teams
The local people who take part in the PRA exercise clearly have to be selected by the community, but care has to be taken that the activity is not "hijacked" by the most literate, powerful and confident members to the exclusion of poorer, less educated groups. As far as possible, representatives from all the key social and

economic groups within the community should be sought out to participate in some way in the PRA. It is very easy for outside teams to encourage participation by those community members who are "most like themselves" (educated, articulate and "progressive"). But this can lead to an extremely biased view of the community. Village elites can often contribute better to PRA as "key informants" than as team members.

Where direct, "full-time" involvement by some groups of local people creates problems, as might be the case with local women in some areas, specific activities have to be designed to ensure that the these groups are able to contribute properly to the process.

Outsiders in PRA teams

The role of the PRA team is primarily to stimulate local people's own capacity for analysis and action. Technical expertise in key fields which are liable to be important is necessary so that ideas and proposals from the community can be assessed on the spot and refined in the light of the broader experience which external experts may have. In some cases, outsiders may be able to suggest solutions unfamiliar to local people but nevertheless appropriate and worth testing.

However, the **key** skill required in PRA teams is effective communication. In the context of the participatory techniques used in PRA, the ability to stimulate and allow communication by others (i.e. local people) is often more important than being able to communicate team members' own ideas or opinions. The team involved in a PRA has to be able to create a situation where local people are willing to be open, do not feel threatened and are convinced of the interest and commitment of the team of outsiders.

All the features of RRA teams outlined in the previously chapter apply to PRA teams as well, but basic features, such as the gender composition of the team and appropriate language ability are fundamental in a PRA team. This can mean that more participants from the area itself need to sought out, such as extension workers or local officials who already have a good relationship with the communities.

7. RRA AND PRA IN AQUACULTURE PLANNING

SUMMARY

The range of potential uses and applications of RRA and PRA depend on the type of planning framework with which they are used. The different applications of the approaches within a sectoral, integrated and participatory planning framework are outlined.

Until relatively recently, efforts to encourage aquaculture development have tended to concentrate on the identification of technically feasible packages which aquaculture planners regard as "ideal" for a particular area. Subsequently it has often been found that adoption is slow and sustainability limited because of non-technical factors which planners failed to take into consideration

RRA and PRA methodologies have been developed precisely in order to overcome problems such as these. They are aimed at understanding rural communities as complex systems where all spheres of activity and the environment are related : biological, technological, social, cultural and institutional.

However, the way in which RRA and PRA can be applied in aquaculture development is highly dependent on the institutional and planning context within which they are used The forms of planning arrangement which are found in different countries and circumstances vary enormously, but three broad "types" can be distinguished which are relevant for the application of RRA.

7.1 Sectoral development planning

The majority of governmental planning mechanisms are arranged along **sectoral** lines. Each sector of the economy or national community is covered by a ministry or department and planning for that sector is largely carried out by that agency. Generally there are directives or targets set by national development policy and plans which the various sectoral plans have to take into account. Mechanisms for feeding the concerns of local-level workers and communities into the planning process are usually limited, if only because planning takes place at levels which are physically and institutionally distant from the "grass-roots".

This does not necessarily mean that there is no integration of planning efforts across different sectors, but it often means that integration takes place at higher levels where the allocation of development resources is decided. At the field level, some integration may also take place, especially where extension services are multi-purpose and cover all sectors. But the planning of interventions and programmes is generally carried out by each separate technical service in accordance with what they consider to be priorities for their sector.

In the case of the aquaculture sub-sector, planning is usually carried out by fisheries departments and ministries. The priorities and programmes for fisheries development are determined by fisheries specialists, generally in relative isolation from other sectors which might be of direct concern to aquaculture, such as agriculture, and generally far from the communities where development activities will actually take place.

This concentration on sectoral interests limits the effective applications of approaches to planning such as RRA, and particularly PRA. Both these methodologies rely on a multidisciplinary, integrated approach to development issues and are most useful when they feed information and learning into a planning system which is also interdisciplinary and integrated.

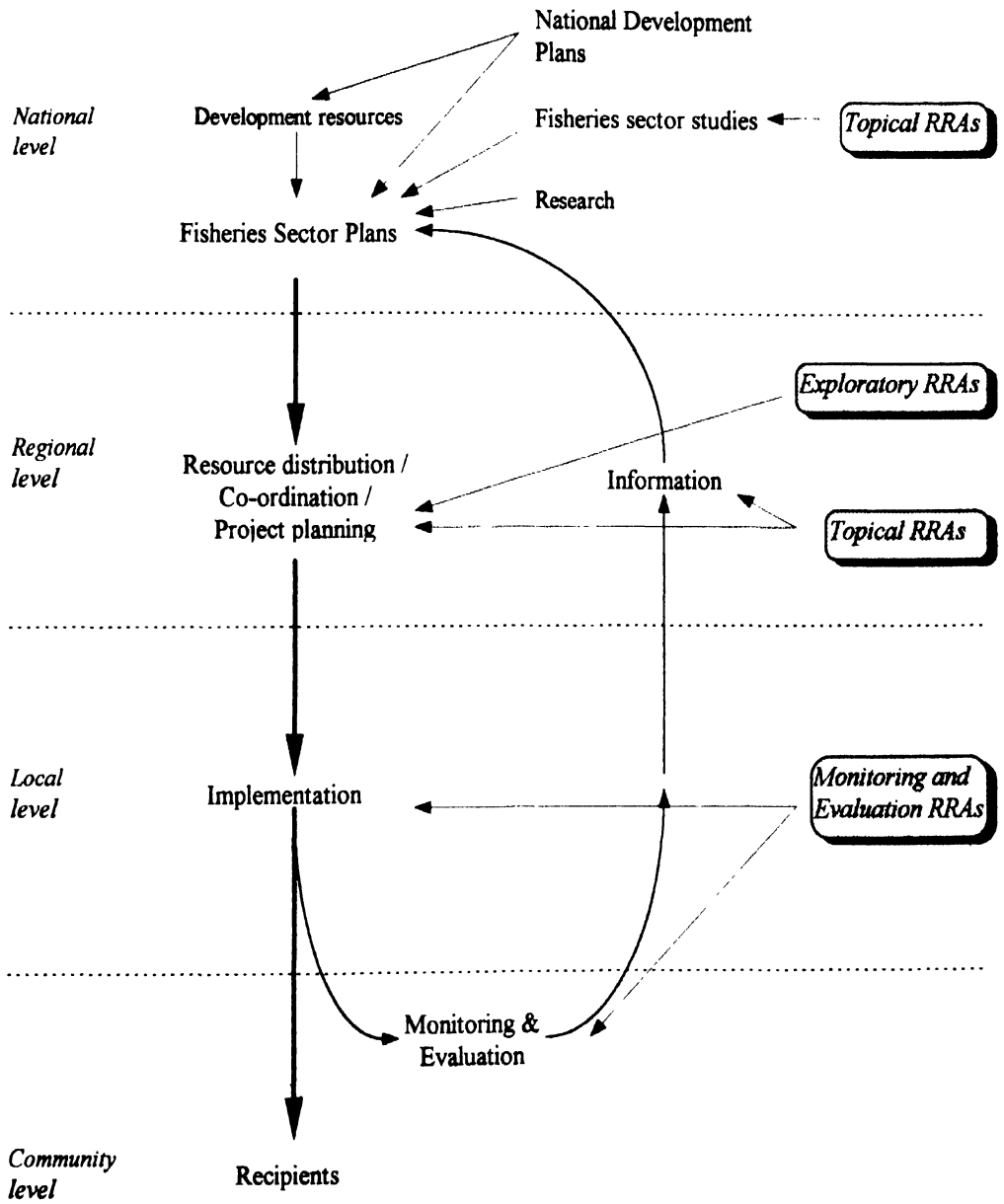
This does not **exclude** the use of RRA within a sectoral planning framework. RRA, and in some circumstances even PRA, can be used to improve the flow of appropriate information into the planning system. However, the extent to which some of the most useful and dynamic elements in the methodologies can be used in such circumstances is more restricted. Figure 13 illustrates the sectoral planning process and the roles of various administrative levels within that process. Clearly, this is a simplified example and there are numerous variants.

RRA has a role to play as a rapid, cost-effective and **relatively** participatory means of collecting information for planning in the sector. However, the fact that it is operating within a sectoral framework means that the "agenda" for RRA activities will be set by sectoral priorities (which may be very different and remote from local priorities). Aquaculture planners are bound to carry out RRAs which focus on aquaculture. As a result, RRAs can most effectively be used in this context for relatively focused, topical investigations which look at particular issues and seek to understand them in a complex way.

The use of PRA, which encourage community-level initiatives in planning, are likely to give rise to expectations and demands from communities and local groups which most sectoral planning mechanisms are simply not equipped to satisfy. Local and regional level agencies used to responding to directives from national-level authorities might find it difficult to turn around their mode of operation in order to **respond** to requests from the local level.

More particularly, requests from the local level are not likely to respect the administrative and disciplinary divisions of development agencies organised along strict sectoral lines. Thus a PRA conducted by an aquaculture agency might give rise to demands for livestock extension which the agency conducting the PRA would not know how to react to. Mechanisms may exist for responding to such demands and passing them on to the relevant agencies but they are likely to be limited as most sectoral planning and allocation of resources takes place at higher levels and require longer periods of time in order to be assimilated into plans and put into effect.

FIGURE 13
SECTORAL PLANNING MECHANISMS FOR AQUACULTURE



7.2 Integrated development planning

The weaknesses of the sectoral approach to planning have become increasingly evident. While different sectors may constitute independent realities within the administrative and bureaucratic system, in the field they are usually closely interrelated. Interventions in one sector can have serious implications for conditions in another and sectoral plans prepared in isolation can often conflict with and duplicate each other. At the local level, particularly in poor rural communities, sectoral divisions are generally meaningless as all activities tend to be interwoven and interdependent.

With aquaculture this inter-relationship is evident, particularly in the freshwater sub-sector, as fish culture often makes demands on resources which are also essential for activities in other sectors i.e. land and water.

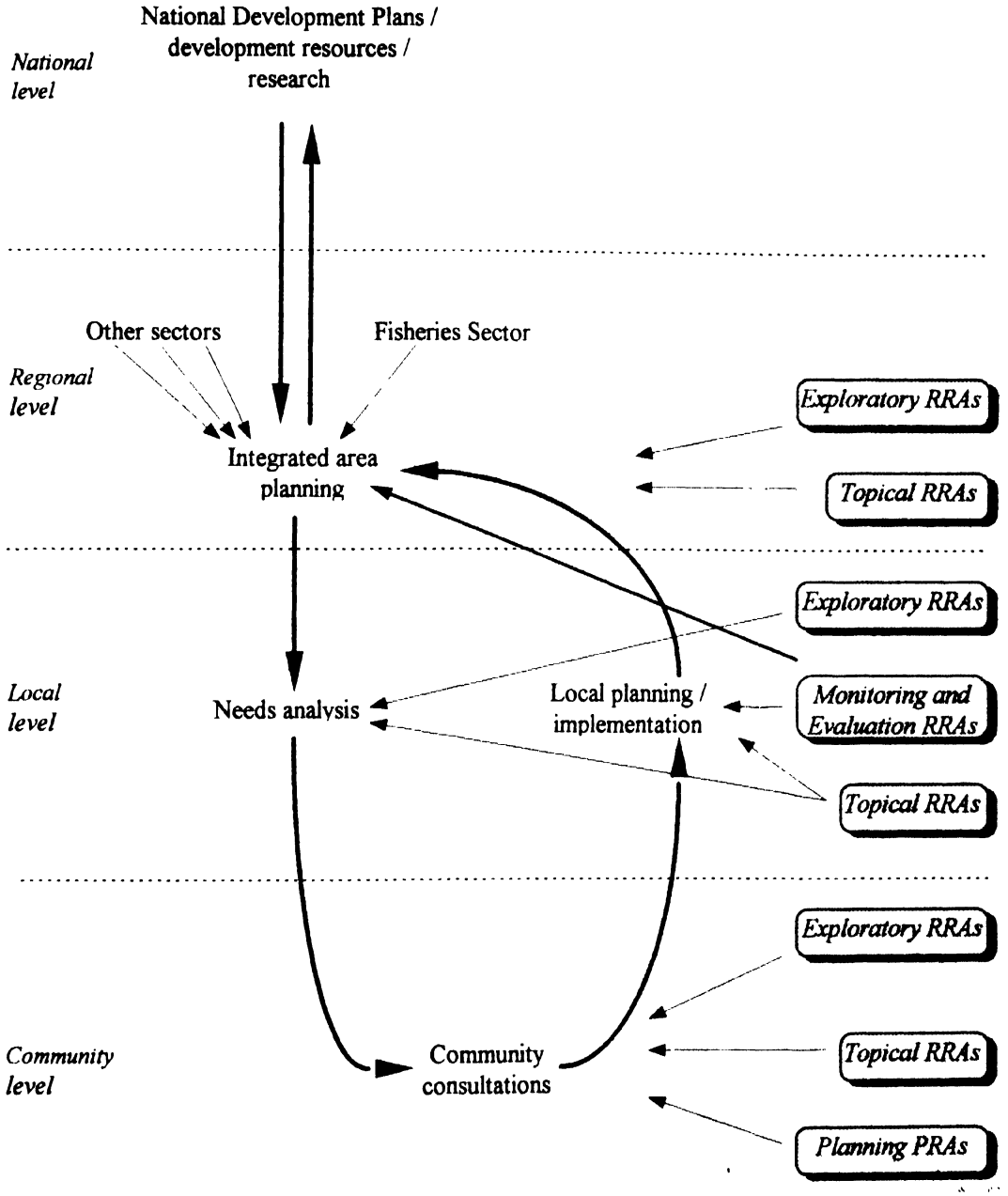
The realisation of these flaws in traditional planning structures has led to the increasing adoption of a more integrated approach. While this usually involves attempts to integrate planning activities across the various sectors at all levels, in many countries the process has been initiated through the establishment of integrated rural development programmes covering particular areas or regions. These programmes have the advantage of permitting a more balanced analysis of the actual needs and potential of particular areas and the formulation of more appropriate interventions to meet those needs.

In some cases the process of integration has commenced at the top, with the establishment of national-level planning mechanisms. However the institutionalisation of integrated planning frequently involves some degree of devolution of planning responsibilities and resource allocation to lower levels of administration. Co-ordination across sectors is generally more effective at these levels and the planning mechanisms are closer to the communities whose needs are being catered for.

In the case of aquaculture, integrated planning provides the opportunity for a more rational approach to aquaculture development. In rural areas, the feasibility of freshwater aquaculture can be looked at in the context of the complete range of productive options open to local people. The resources at their disposal can be properly taken into account as well as the technical feasibility of the activity. In coastal areas, aquaculture can be introduced as one element in coastal area management options, with the possible impacts on other sub-sectors such as small-scale fisheries and mangrove forest resources properly accommodated.

Figure 14 shows a simplified example of the process of integrated rural development planning, in this case focused on regional or area development.

FIGURE 14
INTEGRATED PLANNING MECHANISMS FOR AQUACULTURE



This planning context is able to make far better and more extensive use of the holistic analysis of rural conditions which RRA can provide. RRA can become an important tool for putting integrated planning into action in the field. Exploratory RRAs organised at regional and local levels can bring together planners from different sectors, including aquaculture, who may not be used to working together and force them to reassess their understanding of conditions in the field and work out mechanisms for integrating their development activities

Even PRA can be used in certain conditions in the development of integrated rural development programmes where the mechanisms created at local and regional level are sufficiently responsive.

7.3 Participatory development planning

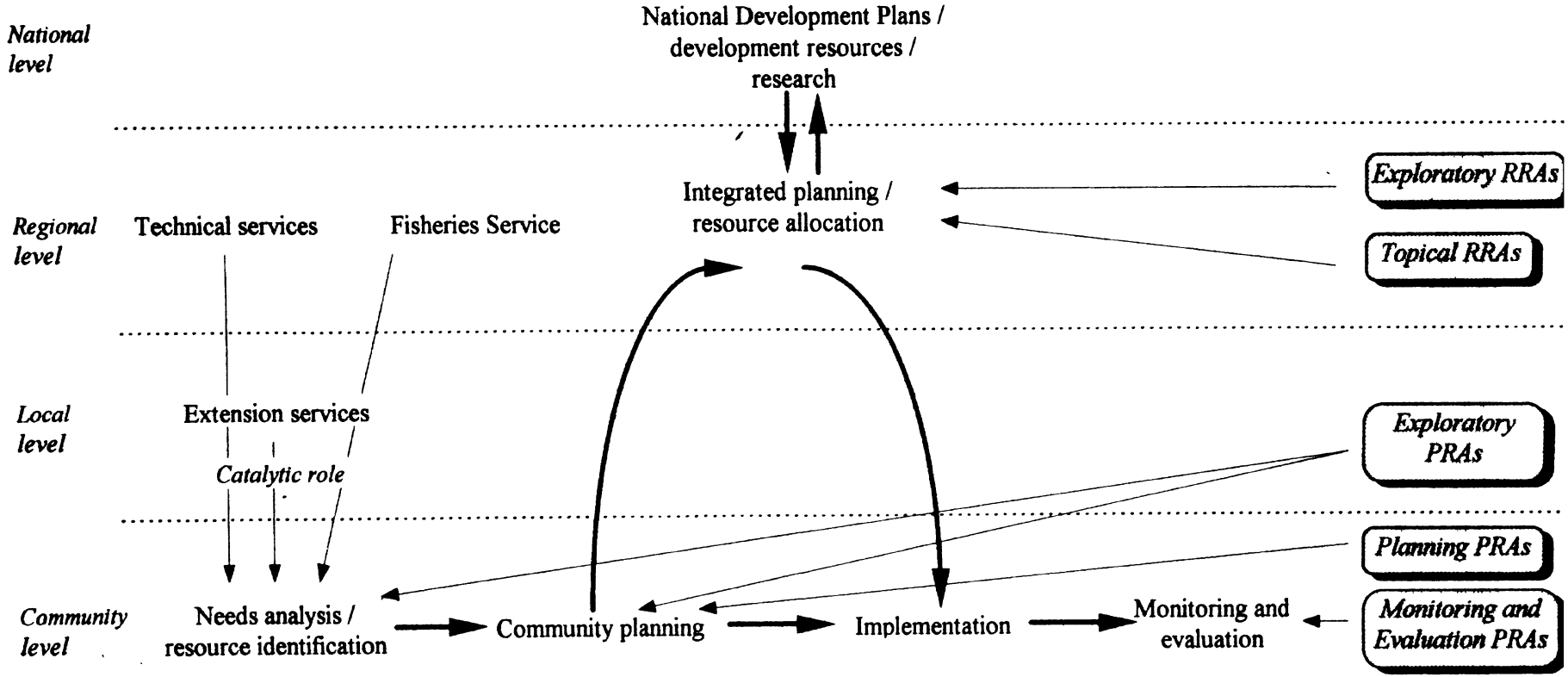
Integrated development planning clearly marks a major step forward in terms of addressing the problems of communities in all their complexity. It can bring the planning mechanisms for development closer to the "grass-roots" and make them more responsive to real needs. An integrated approach is widely accepted as a key element in making development planning more effective and flexible.

At least in theory, aquaculture would generally benefit from its incorporation into a more integrated form of rural development planning. Although such an arrangement might result in a reduction of the resources and attention paid to aquaculture as a discipline, it should improve the targeting and feasibility of aquaculture interventions as they would now be planned in the context of agriculture systems as a whole. In coastal areas, the interactions of aquaculture interventions with other activities could be more easily understood and incorporated into coastal management plans.

However, on its own, integrated planning does not necessarily ensure that planners effectively match development interventions to real needs and priorities at the ground level. The "next step" in this process is the further devolution of planning and decision-making responsibility to include those directly concerned with the impacts of development i.e. the "target groups" themselves. This involves a process of decentralisation which institutionalises the experience of integrated area development programmes and places greater emphasis on establishing mechanisms which link planners with the communities and social groups they plan for.

It is in the context of such decentralised planning that RRA, and particularly PRA, are likely to be most useful. PRA can be used as a bridge between agencies attempting to work in a participatory fashion and communities. It creates the kind of flexibility required by communities but provides the minimum structure needed by development agencies to be able to plan their own activities.

FIGURE 15
PARTICIPATORY PLANNING MECHANISMS FOR AQUACULTURE



As already outlined in the section on PRA, care is required before embarking on fully-fledged PRA activities. PRA raises the expectations of communities. It encourages them to make demands on the development support system. If that system is not prepared to respond to those demands, it is probably better not to use PRA but to employ less "participatory" planning approaches which are better adapted to the realities of the institutional and political structure of the country or area in question. Using more limited RRAs which channel "participation" within certain distinct limits can already engage the community in a dialogue with planners which will put pressure on the system to change and become more responsive to local needs. Such an approach may be preferable to the risk of deluding the high level of expectations which can arise from the use of PRA.

In the context of participatory planning, aquaculture would become one of a range of options which development agencies might be able to "offer" as a possible solution to problems and potential identified by local people. Clearly the role of agencies proposing specific technical solutions such as aquaculture becomes more sensitive in such circumstances. As far as possible, PRA aims to elicit ideas and proposals from local people and then support their choices. Outsiders have to be very cautious about suggesting new, unfamiliar technologies which may seem attractive at first but might prove difficult to manage and unsustainable in the long term.

At the same time, one of the most important roles of outside "experts" in PRA is to introduce new ideas which local people would not normally consider because of their limited experience. PRA requires a carefully considered balance between allowing communities to plan for themselves and providing them with the stimulus of new ideas and resources.

7.4 Incorporating RRA and PRA into aquaculture development planning

Between the three, simplified "types" of planning framework outlined there are any number of intermediate positions where sectoral planning approaches combine with integrated development planning and even participatory planning. Frequently different levels in the planning bureaucracy function in quite different ways and there are conflicts and contradictions between how various agencies, services and institutions go about planning development interventions. However, these three broad categories can be used to characterise the differences in overall planning approach which affect how RRA and PRA can constructively be used for aquaculture planning.

The tables below review some of the possible planning applications of RRA and PRA in aquaculture within the three categories of planning framework discussed above.

As a general rule, the range and variety of applications of RRA and PRA increases depending on the degree of integration and participation which is accommodated within the planning process. In aquaculture planning, RRA and PRA would be most applicable where aquaculture is regarded as one component in a process of rural or coastal zone development and the planning of aquaculture is closely integrated with

other sectors. Where aquaculture development is planned in relative isolation as a sub-sector within fisheries and co-ordinated planning with other sectors is limited, it will be more difficult to make proper use of the learning which RRA and PRA can provide.

TABLE 13

RRA AND PRA FOR AQUACULTURE : SECTORAL PLANNING FRAMEWORK

Type of Planning Activity	RRA / PRA Applications for Aquaculture
Aquaculture sub-sectoral studies	Topical RRAs - • culture practices • input supply • markets • fish demand & consumption • identification of research priorities • identification of key issues
Project appraisal	Exploratory RRAs - • analysis of selected environmental parameters in potential project areas • identification of possible sites for detailed study • identification of key parameters for quantitative baseline studies & monitoring • analysis of social and economic structure of local communities • target group identification Topical RRAs - • analysis of selected environmental parameters • investigation of interactions with other resources • sustainability analysis • analysis of gender implications • analysis of social factors affecting adoption of technology • study of tenure systems and patterns
Impact assessment	Topical RRAs - • assessment of project impacts on key environmental parameters • assessment of project impacts on different social groups • analysis by local people of project impacts according to own criteria • understanding of significance of gender roles • identification of gender impacts
Monitoring	Monitoring RRAs - • appraisal of key environmental variables • appraisal of impacts on target and non-target groups
Evaluation	Evaluation RRAs - • evaluation of non-quantitative environmental impacts • evaluation of project interactions with environment • evaluation of social impacts • evaluation of impacts on specific social groups

TABLE 14

RRA AND PRA FOR AQUACULTURE : INTEGRATED PLANNING FRAMEWORK

Planning activity	Appraisal Activity	RRA / PRA Applications for Aquaculture
Integrated rural development planning	Area needs analysis	Exploratory RRAs - • general analysis of area needs and potential, including aquaculture • inclusion of aquaculture specialist on RRA team
	Target group analysis	Exploratory RRAs - • identification of target groups
	Resource assessment	Exploratory RRAs- • analysis of area resources and resource use • ranking of local people's resource-use priorities
Integrated coastal area management	Coastal area resource assessment	Exploratory RRAs - • analysis of coastal resources and resource-use • appraisal of current conditions of coastal resources • identification of key issues in coastal management • analysis of potential role of aquaculture • inclusion of aquaculture specialist on RRA team
	User group assessment	Topical RRAs - • identification of users of coastal resources • identification of potential target groups for aquaculture development
Land-use planning	Zoning	Topical RRAs - • ranking of suitability of land areas for aquaculture • ranking of local people's land-use priorities PRA - • participatory planning of land use • community consultations on land-use proposals
	Resource-use interactions	Topical RRAs - • analysis of conflicts over resource use • analysis of environmental interactions between different resource uses PRA - • participatory planning for conflict resolution
Water-use planning	Water-use interactions	Topical RRAs - • identification of groups of water users • analysis of conflicts over water use PRA - • participatory planning of water resource use • conflict resolution

TABLE 15
PARTICIPATORY PLANNING FRAMEWORK

Planning activity	Appraisal Activity	RRA / PRA Applications for Aquaculture
Participatory needs analysis	Needs analysis	Exploratory PRAs - • general analysis of needs and potential, including aquaculture • prioritising needs • inclusion of aquaculture specialist on PRA team Topical PRAs/RRAs - • In-depth analysis of specific issues, or needs
	Participatory planning	Planning PRAs • identification of development priorities • allocation of resources • beneficiary analysis and identification Topical PRAs / RRAs - • In-depth analysis of specific issues • Collection of information for planning activities Monitoring and evaluations PRAs - • monitoring of activities • evaluation of impacts
Participatory resource management	Resource analysis	Exploratory PRAs - • identification and assessment of resources identification of user-groups / stakeholders
	Participatory resource-use planning	Planning PRAs - • identification of resource-use priorities • land- and water-use planning • zoning • beneficiary analysis and identification Monitoring and evaluation PRAs - • community impact assessment • monitoring of activities Topical RRAs - • assessment of aquaculture potential • investigation of water and land-use, water and land tenure

8. CONCLUSION

As RRA and PRA gain currency among an increasingly wide variety of international, governmental and non-governmental agencies, it is inevitable that the quality of RRAs and PRAs carried out in the field is going to become more variable. Some RRAs and PRAs will be poorly executed while some will be extremely valuable, just as, in the past, there have been formal questionnaire surveys which have been both wasteful and inappropriate and others which have produced extremely important results.

Perhaps one of the most widespread dangers is that of coming to regard the use of RRA as a **panacea** for all the complex problems facing development workers. RRA is a **tool** and it can be used to carry out certain specific functions. It can be a useful and flexible tool, but it is only as good as the use made of it. Trying to use it to do everything is to risk ending up doing nothing.

Likewise PRA can make an extremely important contribution to ensuring greater participation in development activities in the field. But, as discussed earlier, used in the wrong circumstances it could be positively counterproductive.

There is a real danger that, as more and more agencies make RRA and PRA a regular part of their activities, some planners may become blind to its very real limitations and start regarding it as the **only** means of collecting information and planning which they need to use.

This, and some of the other risks mentioned in this document associated with the use of RRA and, in particular, PRA, should not be underestimated. They are particularly relevant to planners working in fields such as aquaculture. The work of aquaculturists is relatively focused on a particular technical field and it may be difficult, in the short-term, to ensure proper integration with other disciplines so that planning can be more holistic. This in turn can limit the applicability of RRA and PRA.

However, at the same time, there may be pressure, either from higher levels in the bureaucracy or from donors, to be "more participatory" and to use RRA or PRA during project planning regardless of its real relevance within existing institutional and political frameworks. This document has aimed to put aquaculture planners in a position where they can actually assess the **real**, as opposed to **rhetorical**, relevance of RRA and PRA to their work. Hopefully this will put them in a position to resist pressure to use these approaches where they are patently **not** applicable as well as helping them to make good use of them in the right circumstances

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APPENDIX 1
THE HISTORY OF RRA AND PRA

Early post-war development experience

In the mid-1970s, many assessments of development came to the conclusion that a significant change in approach was required if conditions among the poor, largely rural, population of many less-developed countries were to improve Development efforts to date had tended to concentrate on creating infrastructure, introducing new technology (mostly developed in the industrialised nations) and creating the institutions which planners and experts generally felt represented "development" However, while much had been achieved in terms of raising production and diffusing technology, there was general dissatisfaction with the way in which the benefits of these changes seemed to be distributed and the failure of improvements to have any real impact on the living conditions of large sections of the rural poor.

In the agricultural sector on which many of the rural poor depended, "green revolution" technology certainly revolutionised levels of production in some areas, and for some people. The transfer of industrial technologies had set off the process of rapid urbanisation and the social and economic changes which go with it. But many workers in both international, national and non-governmental development agencies were becoming increasingly aware that the fundamental problems of poverty, marginalisation and distributional imbalances which caused "under-development" in rural areas could not be addressed by simply proposing technical improvements to agricultural production or by introducing "modern" institutional structures which were alien to local cultures and social structures.

Practically all the models of development widely applied by agencies in the field, such as technology transfer, community development, extension and training and co-operatives, were seen to end up generally helping those who least required help and excluding from the development process those who most needed assistance. Some benefits inevitably "trickled down" to the poorest sections of society but the majority of the beneficial impacts of development activities continued to be monopolised by urban and rural elites.

Criticisms of development during this period generally focused on three key issues.

1. *Inappropriate development*
   The technical solutions in which development agencies had placed so much faith during the post-war period were seen to be inappropriate to the needs and capabilities of many rural communities. Often they were poorly adapted to the local environment and required levels of technological understanding and sophistication which were unrealistic in the context of traditional rural cultures. Frequently, proposed solutions completely "missed" key target groups who were most in need of the benefits they provided. These groups often included women and the poorest and most marginalised groups in society.

The same was true of institutional forms such as co-operatives which, while successful in the context of industrialised societies with higher levels of education, were often found to be unmanageable for people in rural societies in developing countries.

The need to seek more appropriate technical and institutional solutions, which were manageable and sustainable by their intended beneficiaries was increasingly recognised.

2. *Poor understanding of the social and cultural context of development*
The debate over the appropriateness of the development models being proposed led to an increasing realisation of the need to understand social and cultural issues better if development planning was to improve. The common perception that problems of "under-development" were due to poor technology and inefficiencies in production was seen to be over-simplified. The importance of social, economic and political structures in many rural societies in determining the distribution and intensity of poverty was increasingly understood.

This encouraged development workers to spend more time and resources on understanding the social and cultural context of development and on planning interventions which were better adapted to local conditions.

This created a need for appropriate means of research which would allow development planners to understand the social and cultural setting of development and to address the issues which it raises. Planners required methods that were relatively rapid and would help them open up channels of communication with the supposed "beneficiaries" of their development plans.

3. *Lack of participation*
The lack of effective communication, inappropriate development interventions and poor understanding of the social and cultural factors affecting development processes all stemmed, at least in part, from the failure of planners to involve those affected by proposed developments in the planning process. Development plans were developed by "experts", usually from very different cultural and social backgrounds, to address problems which they perceived to be important. The priorities and needs of the supposed "beneficiaries", who were rarely consulted during planning, were often completely different from the urban-oriented, bureaucratic concerns of development professionals. A large proportion of planners and researchers were, and often continue to be, male and this frequently meant that the concerns and priorities of women in target communities were practically excluded from consideration.

Participation in planning and implementation by "target groups" therefore became a new concern during the 1970s and 80s, creating a demand for adaptable and appropriate methodologies for implementing "participatory development" in the field.

Problems with traditional research tools

In attempting to address these issues, development workers and critics frequently identified the limited usefulness of existing tools for learning about rural conditions as a key problem. Many projects and programmes were planned using information which was extremely limited in its scope, concentrating purely on technical issues which were thought to be of particular importance by experts.

Alternatively, attempts to obtain more in-depth knowledge of local conditions tended to rely on formal, questionnaire-type surveys, which were expensive, labour-intensive, intrusive and extremely slow to implement and process. Such surveys frequently generated large amounts of potentially valuable information but much of this would remain under-utilised. In some cases, the results of large formal surveys were seen to reflect the biases and priorities of those formulating the questionnaires rather than the priorities of the rural communities being investigated.

Traditional forms of social and anthropological research, involving long-term participant observation, would generally provide a far better understanding of the social context of development the value of which was being increasingly understood. But the time-frames involved in carrying out such research and the need to concentrate on relatively limited areas made this approach similarly inappropriate to the needs of development planners.

At the other end of the scale, the formulation of development programmes by outside "experts" based on quick visits and an often superficial knowledge of the features of a particular locality was seen to be equally unsatisfactory. No matter how experienced or skilled the individual, their views and conclusions would tend to be biased by their personal priorities and disciplinary background and by the limitations of time, movement and contact imposed on them during such rapid project appraisals.

Practical participation

During the 1980s development programmes began placing increased emphasis on participation by target groups and beneficiaries, However, the desire to incorporate participation into development planning was often frustrated by a lack of practical tools for doing so. "Participatory" development activities were often found to be difficult both to plan and to fit into organised development programmes. Too many different interest-groups had to be accommodated and the time-scale for activities was frequently long and unpredictable.

Many of these problems were the result of a lack of effective mechanisms for incorporating participatory approaches into existing planning and operational structures of development agencies. The approach of rural communities to planning in terms of time and resources was often very different from that of the agencies and government services which were supposed to be supporting them. The development priorities proposed by rural communities themselves would frequently cut across the disciplinary and administrative boundaries into which development organisations are normally divided.

A demand therefore arose among development workers for tools for participatory development which could be more easily incorporated into the planning procedures of development organisations and agencies.

Alternative tools

Although the appropriateness of development work in the less-developed countries as a whole was being widely questioned in the 1970s and early 1980s, many practitioners in the field had already developed a variety of approaches and techniques to development work, particularly at community level, which seemed to offer valid alternatives to the traditional methodologies.

Experience in farming systems research had led to the development of a wide variety of techniques for collecting information at village-level in ways which both satisfied the needs of planners and allowed rural people scope to express their needs and priorities. The need to understand rural systems encouraged researchers to develop tools which linked together features of the resource, technology and farming practices with local social and economic structures and the beliefs, knowledge and customs of local people. The most effective of these methods tended to involve rural people themselves in the collection and analysis of information, to be relatively quick to produce results so that findings and recommendations could be rapidly acted upon, and to provide an in-depth picture of conditions in an easily digestible format.

In addition, the many NGOs working in development had an enormous store of experience in working closely with communities, paying close attention to their needs and priorities and the ways in which they are communicated. Generally, each NGO would develop their "tools" according to their own needs and by a long process of trial and error.

What was lacking was a systematic approach to the use of the various tools available and their combination into a methodology which would be readily accessible to a wider range of development workers.

Rapid Rural Appraisal

During the 1970s and early 1980s, efforts were being carried out in numerous parts of the world, with the encouragement of a variety of organisations, to create such a methodology. Rapid Rural Appraisal (RRA) represents one particular combination of techniques for information collection and approaches to learning about rural conditions which was collected during this period. It needs to be emphasised that, at least initially, what came to be called RRA was a collection of techniques, most of which were already being used by development workers and NGOs in many parts of the world. The development of RRA consisted in putting these techniques together into a more systematic framework which was then tested, added to and refined in order to make it usable and accessible to a wider range of operators.

Mainly due to the institutional support which it has received in a few key locations, particularly the International Institute of Environment and Development (IIED) in London, and the Universities of Khon Kaen in Thailand and Sussex in the UK, and at several of international agricultural research institutes around the world, Rapid

Rural Appraisal came to be the most widely accepted title for these alternative methodologies during the 1980s.

However, a range of other terms are used for broadly similar techniques. Box 1 lists some of the principal types of research and planning tool which are similar or related to RRA.

TERMINOLOGY	DESCRIPTION	SOURCE
• Rapid Diagnostic Tools (RDT)	• Used to describe the various research and learning tools used in RRA when used discretely or not during a "formal" RRA	IIED, London
• Agro-Ecosystem Analysis	• The process of analysis of farming systems and their environment to which RRA can make an important contribution	IIED, London
• Participatory Learning and Action (PLA)	• A relatively recent synthesis of RRA, PRA and other participatory research techniques	IIED, London
• Diagnosis and Design	• A system of diagnostic surveys and planning discussions for the analysis of community and agro-forestry issues and planning of community forestry activities	ICRAF, Nairobi
• Participatory Assessment, Monitoring and Evaluation (PAME)	• A collection of ideas, methods and tools for participatory planning of community forestry	FAO/SIDA / Forest, Trees and People Programme, Rome
• Participatory Learning Methods (PALM)	• Essentially similar to PRA with emphasis on participatory planning	MYRADA, Bangalore
• Action Research	• An approach to research which encourages active participation by the subjects of the research and participatory planning of action as a result of research	Wide range of national and international NGOs

Some of these terms, notably Rapid Diagnostic Tools (RDT), refer to techniques which are "part" of RRA. Others, such as Agro-Ecosystem Analysis (AEA), refer to approaches to analysis of rural systems which employ RRA as part of their research

and planning methodology. In the planning methods, such as Diagnosis and Design, RRA is used as a tool for collection information and analysing it. In the participatory approaches, such as PALM and PAME, the approaches used might be more appropriately referred to as "PRA" as the participatory elements are given more importance. However, within these approaches, RRA tools are widely used as well.

Participatory Rural Appraisal

The new approaches and techniques which make up **Rapid** Rural Appraisal focus on the relationship between development workers and their "clients", the intended beneficiaries of development. The general perception has been that development proposals were often inappropriate because planners did not know enough about local communities. The emphasis in RRA is therefore on improving communications between "outsiders" and "insiders", generally so that "outsiders" can make better plans and proposals In this respect, RRA has been conceived as a **tool** for development workers which will help them in their work with communities.

However, one of the concerns which has led to the development of RRA is that the priorities and concerns of development workers, the "outsiders" in the rural development process, are **always** likely to be different from those of rural people, the "insiders" in the process. As long as "outsiders" continued to take the leading role in planning on behalf of "insiders", there will always be a some distortion in the process. Understanding and communication can be **improved** by using appropriate tools, as in RRA, but the best solutions are those which are generated by the intended beneficiaries themselves, with outsiders simply helping and supporting the process, as opposed to leading it.

Experience with participatory development programmes, particularly in the non-governmental sector, has developed many techniques to encourage this kind of planning. Some of these were incorporated early on into RRA methodologies and all RRAs were regarded as being "participatory", at least relative to "traditional" development approaches. But RRA generally remained a process for extracting information the use of which continued to be controlled by "outsiders".

The combination of communication tools developed for RRA and the desire among some development agencies to achieve a more fundamental change in the relationship between "planners" and the people they plan for has given rise, in more recent years, to what is generally known as Participatory Rural Appraisal (PRA).

PRA and RRA are frequently mentioned in the same breath and the same organisations are often involved in both approaches. PRAs were originally envisaged as being a "type" of RRA. However, with the increasing diffusion of both sets of approaches, differences in the way the two activities are understood are becoming clearer and the two terms can be used effectively to define quite different approaches.

APPENDIX 2

RRA TOOLS

Some of the most widely used RRA tools are reviewed below. This is not a "manual" on RRA but is intended to give those unfamiliar with RRA and PRA an idea of the range of techniques used in the approaches and to help them understand the discussion in Chapter 5 of the use of RRA tools in aquaculture.

SECONDARY DATA REVIEWS

"A thorough and systematic review of all possible existing sources of information about the topic or topics which are the focus of the RRA".

General sources

- Government statistics, departmental reports
- projects reports, environmental impact studies for engineering projects
- reports of other agencies or NGOs working in the area or on similar topics in other areas
- University libraries - research theses, survey reports, anthropological publications, journals
- local libraries and museums
- mission records
- historical accounts of the area
- maps from government surveys, mining companies, local military or other sources
- aerial photographs, satellite imagery
-

Aquaculture-related sources :

- soil surveys
- land-use surveys or maps
- hydrological studies
- reports from fisheries and aquatic biology institutions
- fish marketing studies
- local commercial bulletins, chamber of commerce records
- bulletins of local associations of fish farmers, fish traders, fishermen

Purpose :

- to collect all available information
- to provide historical perspective
- to provide basic data on population, environment, agriculture
- to confirm the need for an RRA

WORKSHOPS

"A meeting where a series of set tasks are performed and an output produced".

In RRA, workshops usually involve the RRA team, but also, if appropriate, local people, officials, technical specialists not taking part in the RRA full-time.

Key features :

- everyone involved needs to be encouraged to contribute
- someone needs to moderate to keep the workshop moving and ensure that the tasks set are performed
- the output of the workshop needs to be recorded
- some form of media for presenting ideas, findings and reports

Purpose :

Preparatory workshop

- assembling team, introductions, briefing
- training in RRA techniques (if required)
- discussion and setting of RRA objectives
- discussion topics for investigation
- preparation of initial checklist of research topics
- review of appropriate tools / approaches
- planning of RRA

Periodic recurring workshops

- periodic review of findings of field work
- monitoring of progress of RRA
- checking of coverage
- review of techniques used / discussion of alternatives
- triangulation - (each topic of research investigated by different team members using different techniques and different sources)
- review of checklist of research topics
- report updating

Final workshop

- review of overall findings
- report preparation
- discussion of follow-up
- participation of key non-participants (local officials, community leaders)

SEMI-STRUCTURED INTERVIEW TECHNIQUES

"Interviews which are planned ahead of time and have a specific focus but with a flexible format".

Key features :

- no set questions or questionnaires but instead topics for discussion from checklist
- flexible in terms of where and how carried out - at home, in public places, at work sites, at the pond-side
- ideally carried out by at least two team members - one to ask questions, another to record responses and discussion
- key topics agreed upon ahead of time by team members involved and used as a guide for discussion to keep interview "on track"
- accommodate local traditions regarding conversation, interaction with strangers, greetings, etc.

Main types :

- ***Key informant interviews***

Involving individuals who are thought to have special knowledge about a particular topic of set of topics (old people, community leaders, doctors, teachers, people involved in particular activities)

In aquaculture : fisheries/agriculture extension workers, fish farmers, fish traders, fish fry collectors or traders, sellers of aquaculture inputs.

- ***Focus group discussions***

Involving groups of people with an interest in a particular topic or issue. These might be groups of resource users, members of a particular social or occupational group or members of institutions

In aquaculture : groups of fish farmers, fish traders, capture fishermen, fish fry sellers / collectors, input salesmen.

- ***Individual or household interviews***

Interviews with individuals or household groups either met by chance, or selected according to an approximative sampling of different social or economic groups within the community. These can be particularly important for understanding household survival strategies and intra-household dynamics.

In aquaculture : as for key informant interviews.

Purpose :

- obtain information on specific issues
- give local people opportunity to ask questions and discuss their own priorities
- create forum for more general discussion from which new issues and topics for research can arise
- create forum for use of RRA communication tools

RANKING AND CLASSIFICATION TECHNIQUES

"Tools for encouraging the people being interviewed to divide sets of items or activities into categories and rank them according to different criteria.".

Key features :

can be used as formal exercise or as aid to interviewing
provides focus for discussion
can be carried out with individuals or with groups
provides a clear, graphic form of presentation of local people's ideas
adaptable to local circumstances and can use materials readily understood and manipulated by local people

Main types :

- ***Local classifications and taxonomies***

Local people can be asked to list local names for items such as animal, plants, landtypes and then group different items, resources or activities together into categories and then explain the features between different categories

In aquaculture : taxonomies and classifications of fish species, land and soil types, land / pond tenure arrangements,

Matrix ranking

Using local classifications, the features or characteristics of groups of items or resources can be ranked according to different criteria such as reliability, seasonal stability, price, income generated, preferences.

In aquaculture : ranking of fish species according consumption, taste, price, profitability, ease of production, ranking of farming / livestock activities, priorities for water use, labour, fish use, land use.

Pair-wise ranking

A more detailed ranking can be obtained using pair-wise ranking which compares pairs of items in a group until all are placed in an order of priority according to certain criteria

In aquaculture : as for matrix ranking

- ***Indicative ranking***.

A notional ranking can be used in many circumstances to provide indications of relative size or importance of particular features, numbers of people involved in activities. Local materials such as stones or beans can be used to quickly indicate proportions or numbers in a more concrete fashion.

In aquaculture *:* on sketch maps, indicate distribution of ponds, fishing grounds, land tenure arrangements using proportional indicators such as stones, beans, etc.

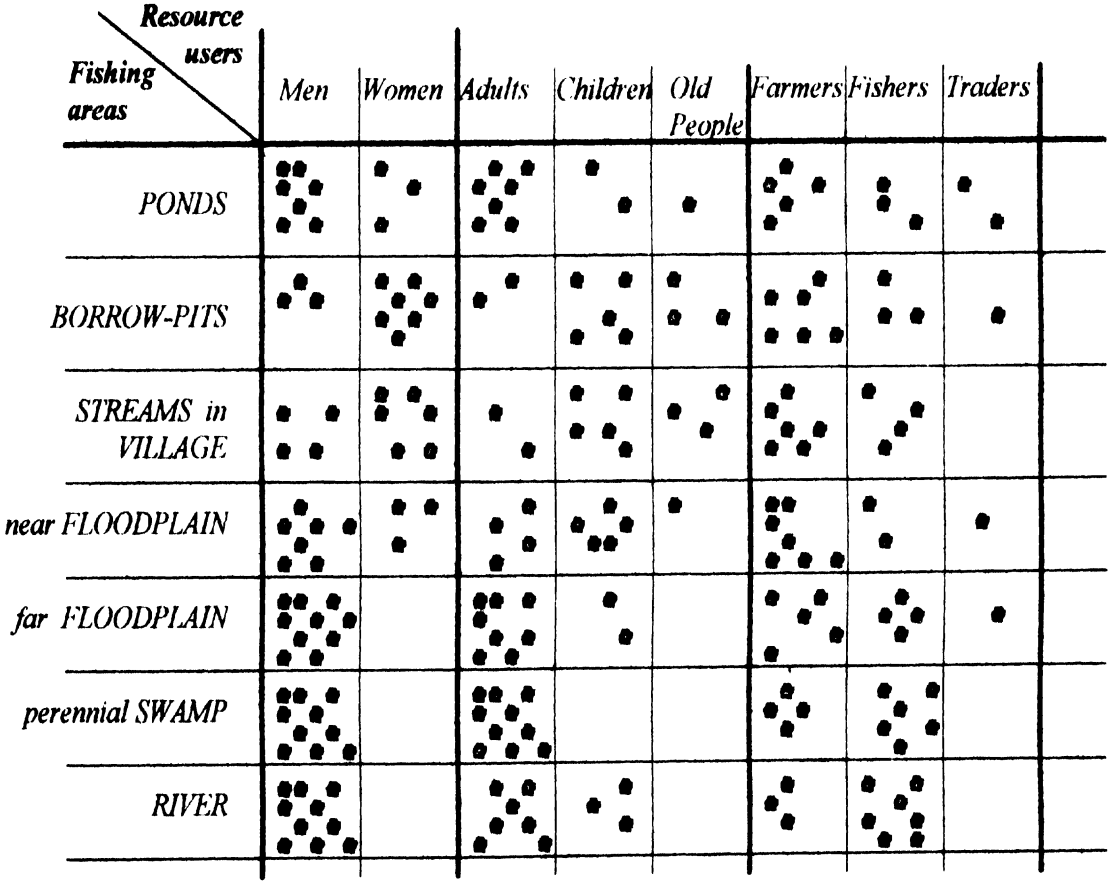
Purpose :

to understand local people's priorities
to understand why certain choices are made
to understand the local environment and people's knowledge of it
to understand local terminology and classifications

EXAMPLES of RANKING

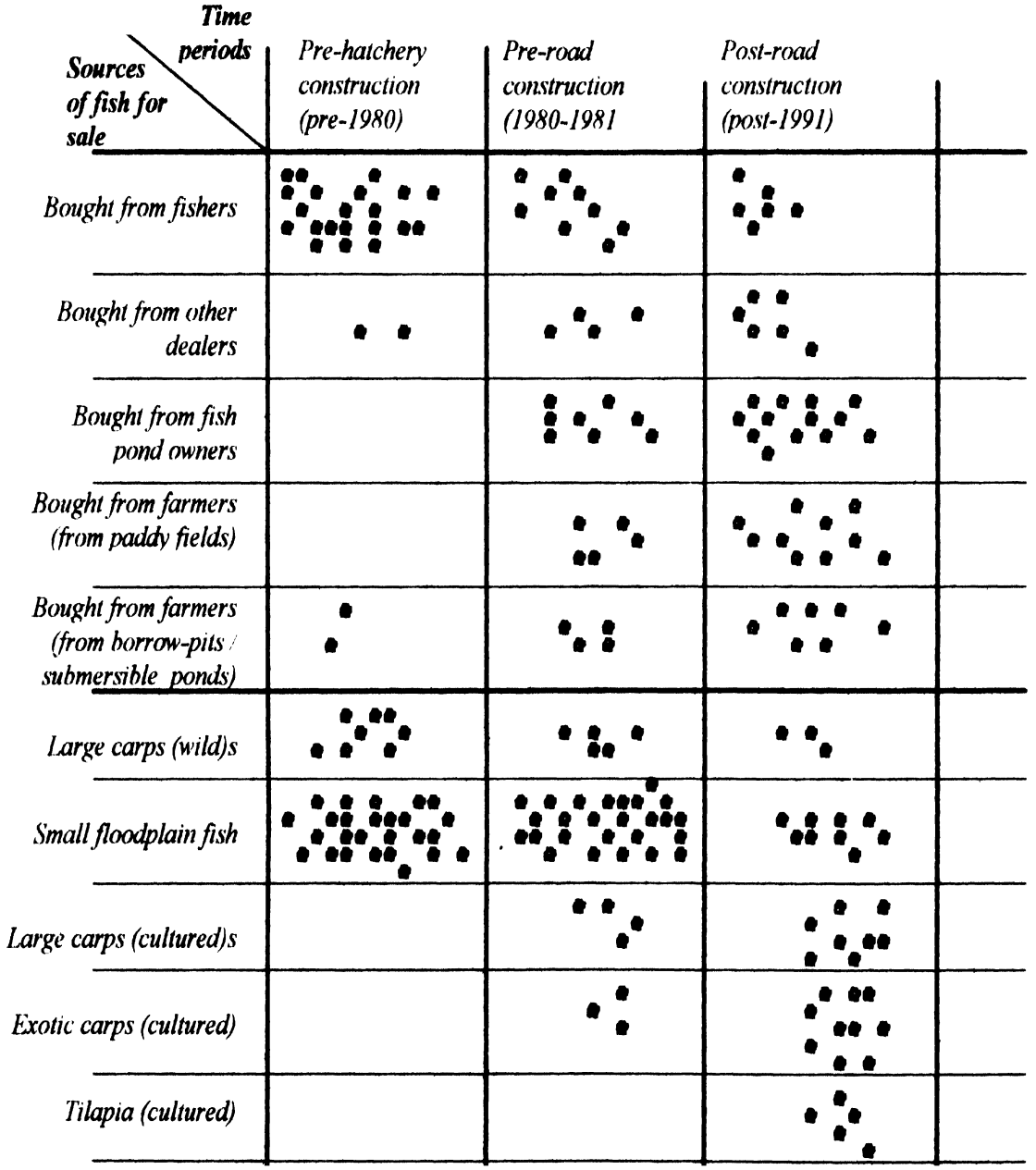
A very simple ranking matrix was shown in the case study in Chapter 2. The two ranking exercises shown below are more complex. The first matrix shows how a ranking exercise could be used to distinguish the relative involvement of different social and occupational groups in exploiting different fisheries resources; including fish ponds, in a floodplain area. Here some easily available materials, such as stones or beans, are being used to express the proportions of a particular resource used by different social groups - men and women, adults, children and old people, and different occupational groups based on those identified by local people as being involved in fishing.

In ranking exercises of this kind care has to be taken that it is clear **what** is being ranked - in this case relative proportion of overall resource use. RRA teams also have to make sure that they have thought through the numbers of "counters" used in each category. In this case, 10 stones have been given for each comparative group - i.e. men and women using pond fisheries - so that the result can readily be expressed as a simple proportion. But clearly this does not tell us which of the various resource categories is most important for each user group. Ranking could also be attempted **vertically** to clarify the relative importance of the resources. This would help in trying to assess the current importance of pond use for fisheries relative to other sources of fish.



In the second matrix, the focus is on changes over time. In this case, the team doing an RRA about current aquaculture development in a particular area might want to see how sources of fish in a local market have changed so that the relative importance of aquaculture can be assessed. A fish dealer, or group of fish dealers, might be asked to show, again using stones or some other kind of counters, the relative amounts of fish bought from different sources now and in the past. This could be combined with a discussion of changes in the species composition of fish sold. The time periods used could be chosen by the team or, better still, be based on prior discussion with local people which had identified events or periods which people readily recognised based on political, economic or resource changes.

CHANGES in FISH TRADERS' SOURCES of FISH and SPECIES SOLD : pre-1980 to present



DIAGRAMMES AND GRAPHICS

"Combinations of writing and graphics which describe certain features or issues more clearly than a simple written or oral description".

Key features :

- properly used, they can help communication by overcoming language barriers
- provide a structure to information which can help both the people providing that information (local people) and those using it or passing it on to others
- may be very location and culture specific
- provide a focus for discussions and questioning

Main types :

- ***Venn diagrammes***

Particularly useful for illustrating the relationships between different groups and institutions within communities, with points of contact, overlaps and relative sizes.

In aquaculture : social, economic and institutional characteristics of fish farmers, land owning groups, institutional structured affecting land and water use or distribution.

- ***Graphs and bar charts***

Simple graphs or bar charts can be used to present quantitative data, even if the quantities are approximative.

In aquaculture : relative production levels from ponds, quantities of inputs used, levels of fish consumption, earnings, expenditure.

- ***Flow charts / decision trees***

Flow charts can be used to illustrate practically any process : the use of certain resources for different activities, the movement of resources within the farming system, patterns of decision-making or genealogies.

In aquaculture: production processes, input flows (fertilisers, fish fry, water, labour), resource flows in pond/farming systems, decision processes over input use / land use / investment decisions / marketing options

- ***Pie charts***

Pie charts can be used to represent proportions and to look at time-use. Daily activity patterns can be presented in this form.

In aquaculture : relative income from fish farming and other sources, relative use of inputs / outputs.

Purpose :

- to provide approximate quantification and relative proportions of any activity, phenomenon, group, etc.
- to illustrate processes
- to provide graphic representations understandable to local people and outsiders

EXAMPLES of DIAGRAMMES and GRAPHICS

In Chapter 2, some examples are presented of Venn diagrammes used to analyse institutions and their responsibilities and pie charts to look at time use by different gender groups in rural communities.

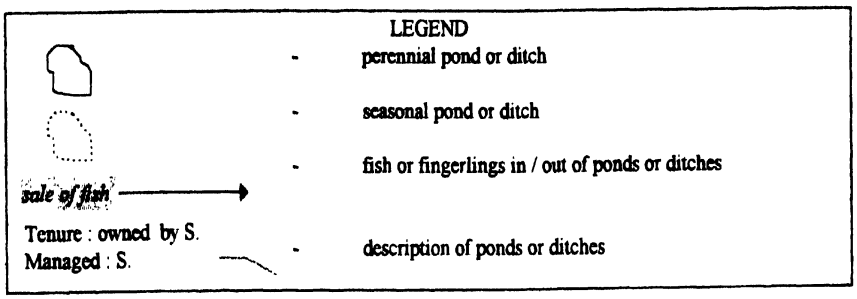
Here some other examples of graphic representation are given. The first diagram shows the flows of fish and fingerlings among different ponds and ditches in a village. In this particular case, a single respondent, "S.", has been interviewed about the various ponds and ditches which he uses for his various aquaculture-based activities. This is based from an actual case-study from Bangladesh where a similar exercise revealed an extremely developed and intricate system of use of every available body of water in a particular village for the various stages of the aquaculture process. The first step was to draw up a diagram like this with a key informant and use it as a basis for subsequent conversation (based on Shah et al., 1994). This type of diagram can be produced on the ground and used as a focus for any discussion of how the available water resources in a community are used, tenurial arrangements of different types of water body, and the level of technical competence in aquaculture of community members.

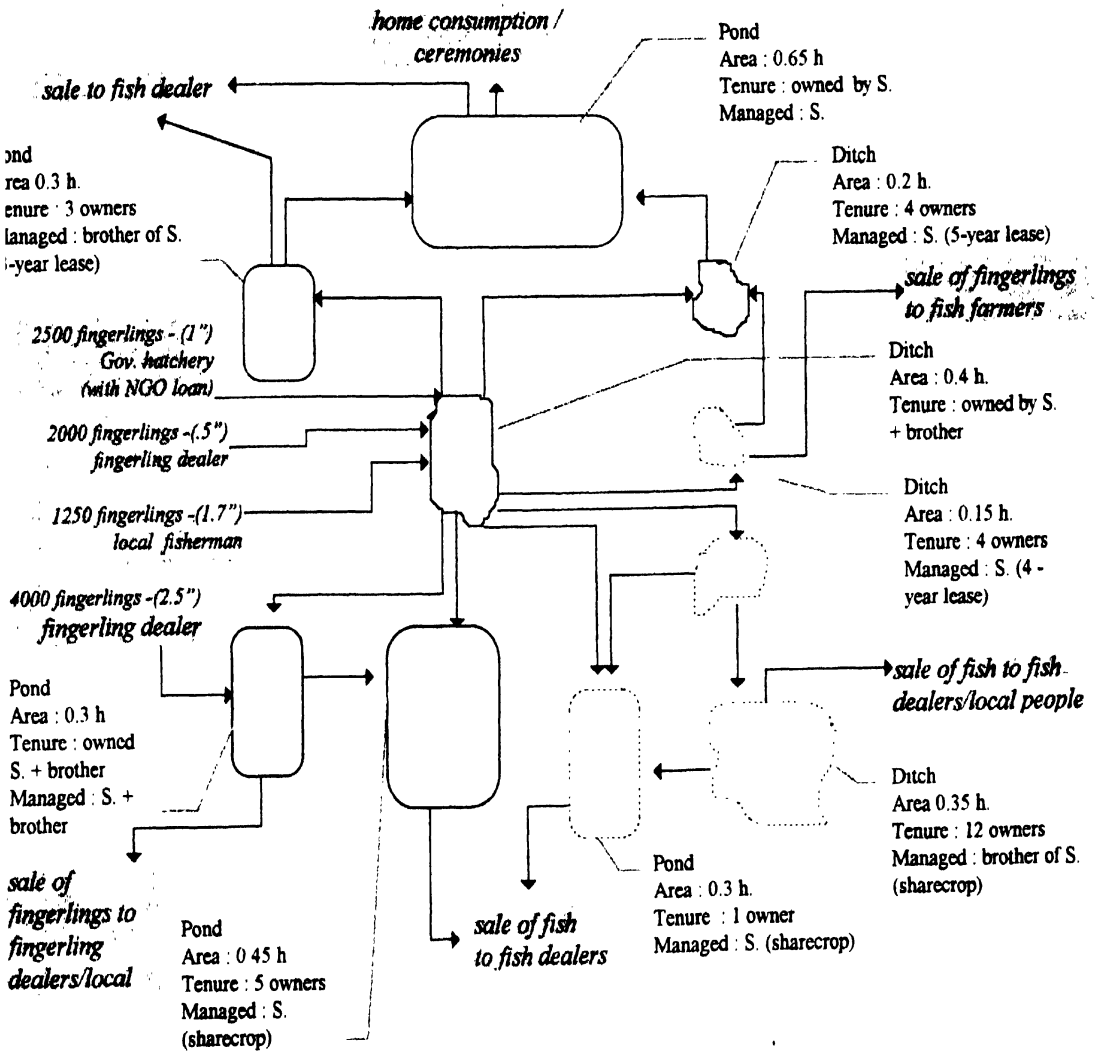
While this final result is relatively complicated, the version initially produced together with the local respondent was limited to the drawings on the ground of various ponds and ditches and arrows indicating movements of fish and fingerlings between one and the other. Additional information about each pond was then added based on more detailed questioning.

Similar diagrammes can be used to analyse the flow of resources within any rural system, whether on a community or household basis.

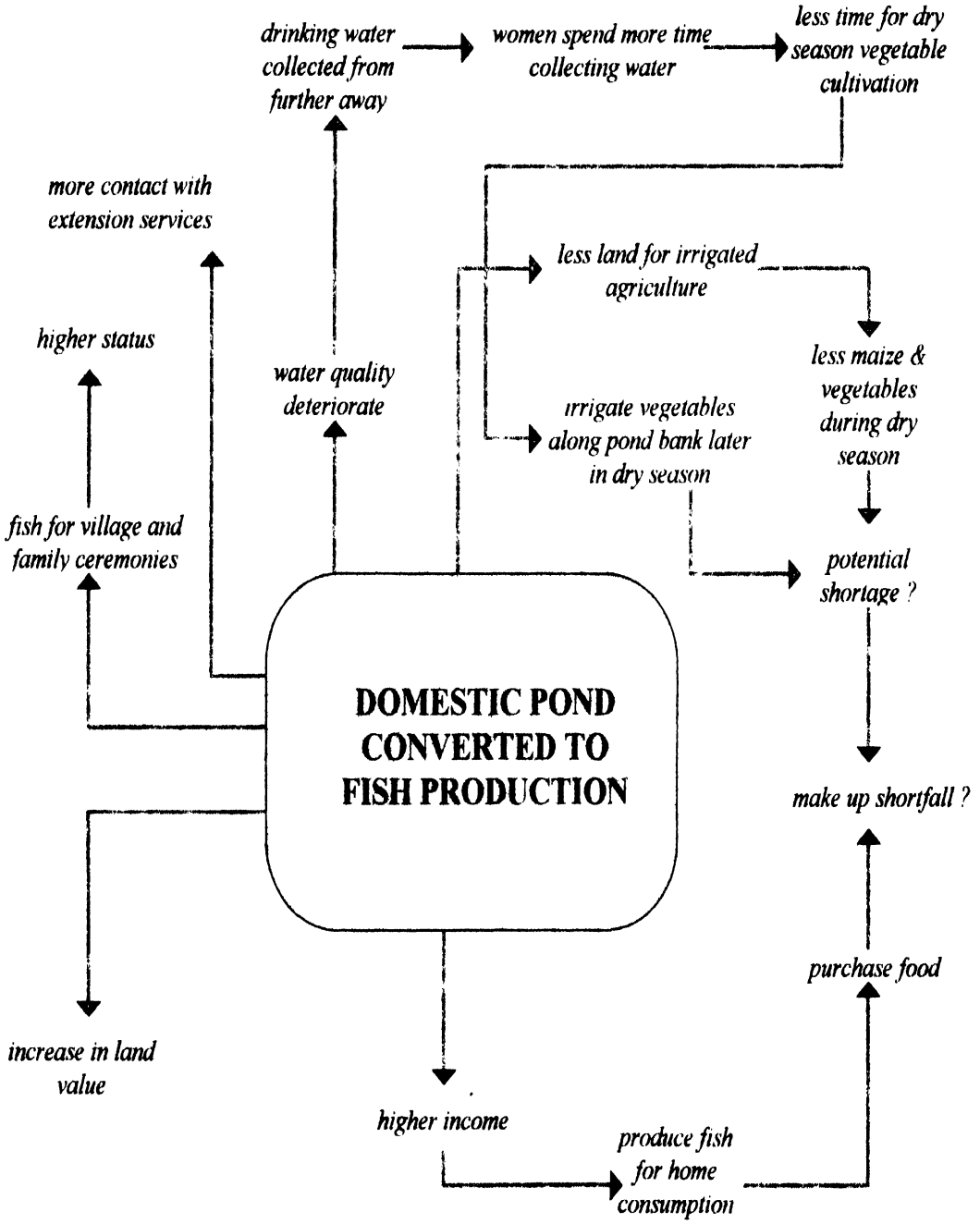
The second diagram shows is an impact diagram for the conversion of an existing domestic pond in a rural community for fish production. Respondents could be encouraged to create such a diagram while talking about possible effects of aquaculture development. It might also usefully be used by an RRA team once they have already developed their own ideas about possible impacts and want to cross-check them with local people.

FLOWS of FISH and FINGERLINGS between PONDS and DITCHES





IMPACT DIAGRAM for CONVERSION of EXISTING POND to FISH PRODUCTION



MAPPING TECHNIQUES

"Drawings or models, using whatever media is appropriate, which represent the local environment and key features of that environment."

Key features :

- a means of representing the area being studied and its characteristics which can involve local people
- a good introductory activity to get range of local people active in the appraisal
- can make use of any appropriate local media
- provides concrete focus for subsequent discussions
- an output easily understood by local people

Main types :

- ***Sketch mapping and modelling***

These can use either maps prepared in the field with the participation of local people or base maps prepared prior to the RRA. Mapping with local people can become an important forum for discussion of local problems and needs and involve a large number of people in the RRA. Use of base maps is more for team members

In aquaculture : general understanding of area and local priorities

- ***Thematic mapping***

Using general sketch maps as a basis, specific themes or topics can be mapped, such as land ownership, poverty distribution, water run-off.

In aquaculture : mapping of terrain, contours and water run-off, land use, land tenure, land ownership, local water bodies, irrigation systems, fish markets

- ***Resource mapping***

The distribution, ownership and the use of different resources can be shown using a base map. This can then be developed into a zoning of the resource features of the area.

In aquaculture : as for thematic mapping

- ***Historical mapping***

Maps prepared by local people to illustrate the way a community or area has changed. Old maps can be used as a source as well.

In aquaculture : changes in land tenure, land ownership, land use, catchment areas, water run-off, water bodies, wetlands.

Purpose :

to understand the spatial distribution of aquaculture-related factors

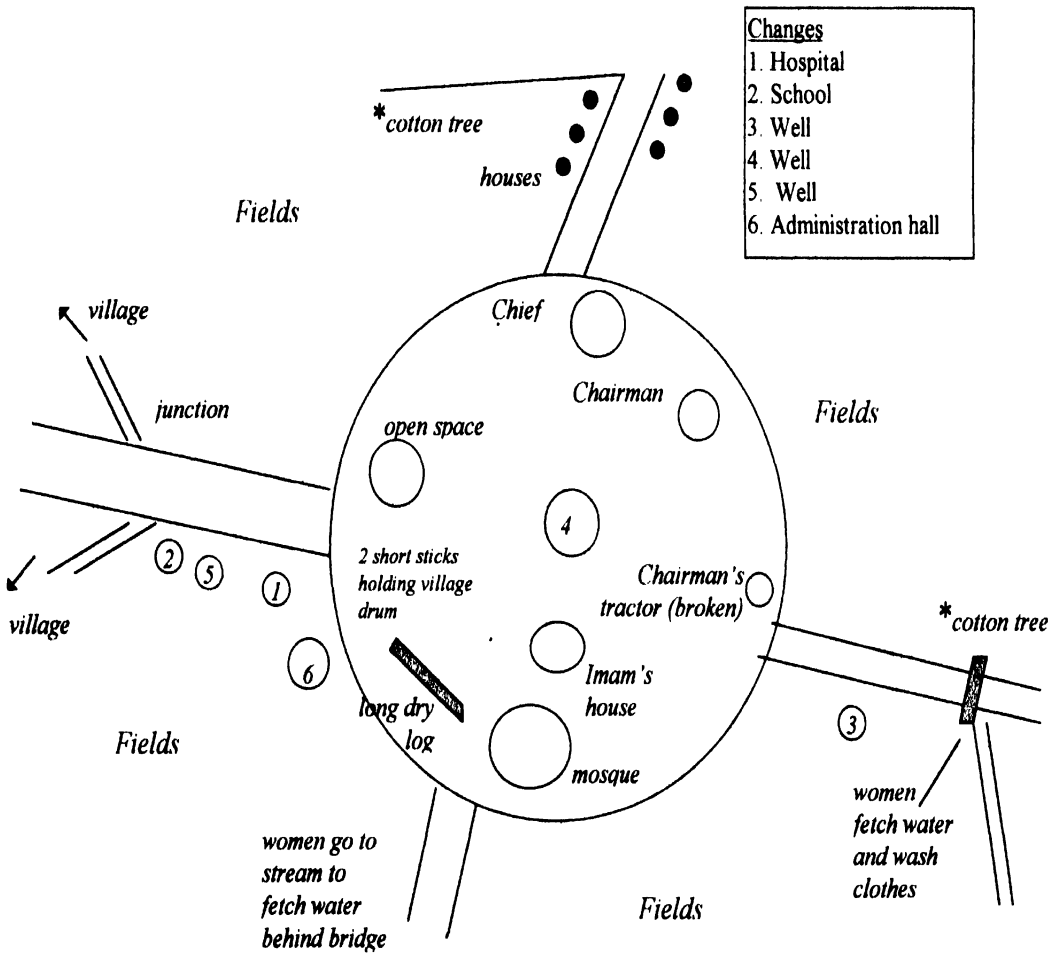
- to familiarise outside teams with the area

to understand local people priorities and understanding of their environment

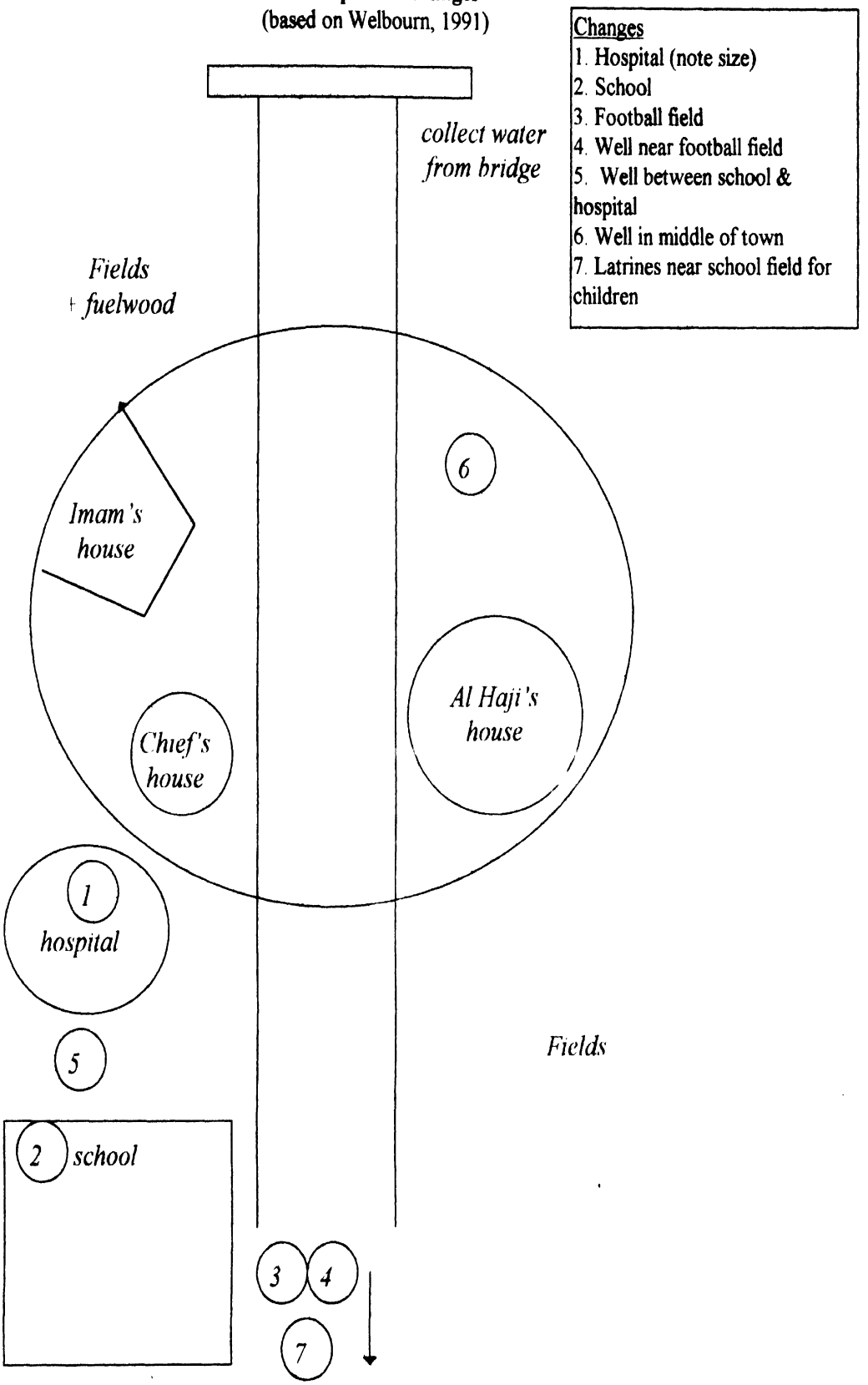
EXAMPLES of MAPPING TECHNIQUES

Some examples of sketch maps were shown in the case study in Chapter 2. But maps can be used for a wide range of purposes. As a starting point, local people should usually be allowed to make their own maps and decide what **they** think should be shown on their map. Subsequently, RRA team members can focus people's attention on particular issues or themes and ask them to be entered on maps as well. One typically useful way of using mapping is to encourage men and women to illustrate their respective priorities and world-view. This could of considerable importance in determining what roles men and women respectively could play in aquaculture development. The example below is not specifically related to aquaculture but illustrates the point well. Depending on the prevalent gender roles in a particular society, men's maps and women's maps are likely to differ considerably. In this case, from Sierra Leone, men's perception of the world is considerably more wide-ranging than women's and the locations and landmarks they indicate are very different from those of women.

MEN'S MAP OF GBULON VILLAGE, SIERRA LEONE
with hoped for changes
(based on Welbourn, 1991)



WOMEN'S MAP of GBULON VILLAGE, SIERRA LEONE
with hoped for changes
(based on Welbourn, 1991)



STRUCTURED OBSERVATION

"Tools to assist in ensuring that observations by RRA teams are thorough, careful and well-recorded".

Key features :

- flexible
- includes more formal exercises involving groups of people and prior planning as well as quick techniques for use during interviews
- can be used to involve range of people in appraisal (transect walks)
- focuses attention on details of environment
- makes use of local people's observations

Main types :

- ***Transect walks***

Walks taken in company with local people along transects through the area under study. The transects take in as wide a range of environments and conditions as possible and provide an opportunity to observe activities, agro-ecological conditions and talk to people about them. Observations can be recorded as drawings or notes. These can be developed into detailed transects through the community or area showing agroecological zones, problems and potential, crops, etc

In aquaculture : transects of catchment areas, understanding land use patterns, zoning of land areas, problems and potential

- ***Key indicators***

Particular features which can be taken as indicators of more general conditions can be identified either prior to or during the appraisal so that they can be measured or looked for during field work. Indicators can be identified for relative wealth or poverty, social and economic status or ecological and environmental conditions.

In aquaculture : key indicators relating to ponds, their use and potential - water quality, fish species and size ; key indicators of land suitability - soil quality, current use ; fish demand and consumption indicators - fish in markets, prices, children's fishing ; social and economic indicators - relative wealth status, housing conditions, use of fish in ceremonies

Purpose :

- to ensure that all observations during appraisals are used and recorded
- to structure observations so that they produce usable outputs
- to focus attention of appraisal teams on local features that may otherwise go unobserved

EXAMPLES of STRUCTURED OBSERVATION

The diagram below illustrates the way in which transects can focus attention on key issues affecting different areas in and around a community. In this case, this includes problems relating to existing aquaculture activities, but it also highlights other, perhaps more important, problems in surrounding areas.

Such diagrammes can be drawn directly with local people referring to local landmarks and features, with discussion then systematically focusing on uses and problems.

TRANSECT of WAHARIA VILLAGE, IRIAN JAYA showing ACTIVITIES and PROBLEMS

Area	FOREST	UPLAND FIELDS	LOWLAND FIELDS	PONDS	SETTLE-MENT	MAIN ROAD
Activities/ Land-use	Rotan collection Firewood collection Hunting Collection of wild leaves, roots	Short-term crops • green vegetables • legumes • root crops Livestock raising • pigs Wood storage	Long-term crops • cocoa • fruit trees • coconuts	Trials of catfish culture	Housing Long-term crops Brick-making	Transport of produce
Problems		• livestock disease	• land-use patterns decided by original landowners (*suku* Wate)	• theft • lack of advice from fisheries extension service • no additional feed	• limited extension support	• transport expensive

UNDERSTANDING PROCESSES AND CHANGE

"Tools for representing and analysing dynamic features of a community or environment".

Key features :

- makes use of graphics to clarify processes
- establishes connections between different sets of factors and conditions
- takes account of past changes, current conditions and predicts future trends

Main types :

- ***Timelines***

These can be used to represent periods of time up to the present and significant events which have occurred in the past. These can provide the basis for discussions of changes and trends.

In aquaculture : timelines of changes in water use, aquaculture development, fish availability and demand, land use, floods, catchment area changes.

- ***Seasonal calendars***

Understanding in detail seasonal patterns of crop production, labour demand, consumption, income and expenditure is fundamental to the understanding of rural communities. All activities can be placed in a seasonal context using simple charts.

In aquaculture : calendars of labour and time-use, agricultural activity, rainfall, water availability, fish consumption, ceremonial calendar.

Process diagrammes

Particularly important events in the past can be analysed using process diagrammes showing causes and effects in time.

In aquaculture : decision-making processes over resource-use, water distribution in irrigation schemes, livelihood activities, consumption and expenditure patterns.

- ***Historical maps and transects***

Maps and transects can be prepared to illustrate historical changes based on the accounts of local people.

In aquaculture : historical changes in water bodies, catchment, land use and tenure, water use and tenure.

- ***Oral histories***

Stories told by individuals or life histories can be used to cross-check accounts of the history of the community as a whole.

In aquaculture : stories of involvement in aquaculture and fisheries, accounts of changes in fish availability, water supply, occupation

Purpose :

- to understand conditions outside the period covered by the RRA
- to understand processes leading up to current conditions and trends for the future

EXAMPLES of DIAGRAMS ILLUSTRATING PROCESS and CHANGE

Two examples of diagrammes illustrating processes are shown below.

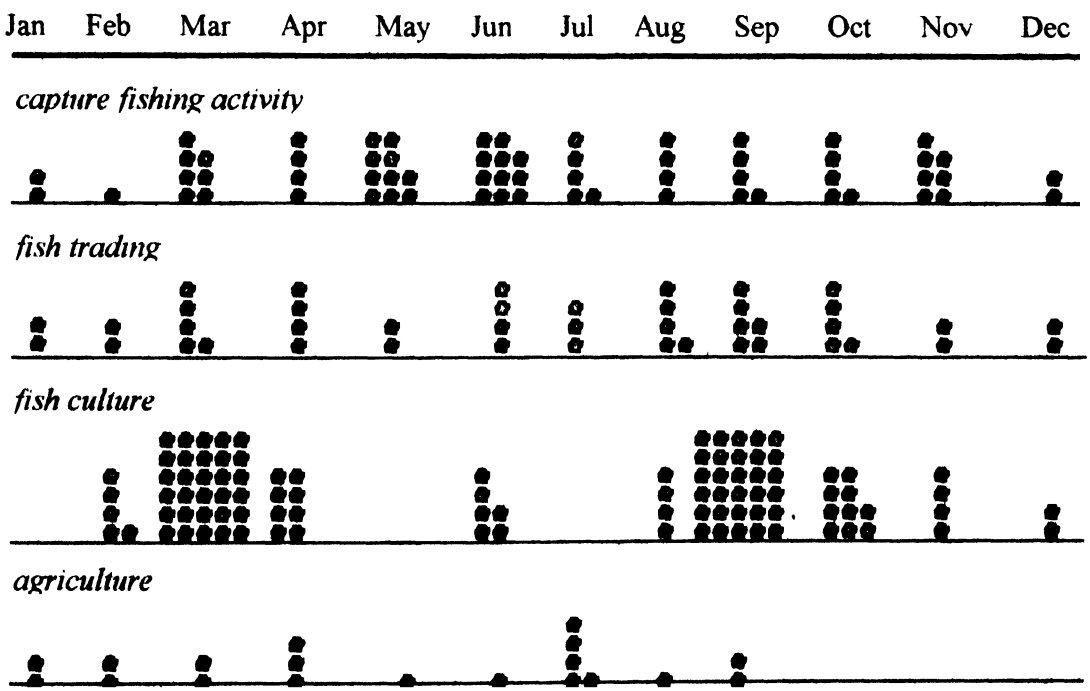
The first diagram shows a seasonal calendar which relates the aquaculture activity of a household to all the other elements in that household's seasonal survival strategy. The creation of such seasonal calendars is of key importance in understanding how people combine activities through the year and where there are peaks and troughs of income, food supply and employment. The seasonal dimensions of all of these can have important implications for existing or proposed aquaculture activities.

Seasonal calendars like this can either be drawn using bars to indicate period, or counters, like the stones here, can be used to give a better idea of relative proportions.

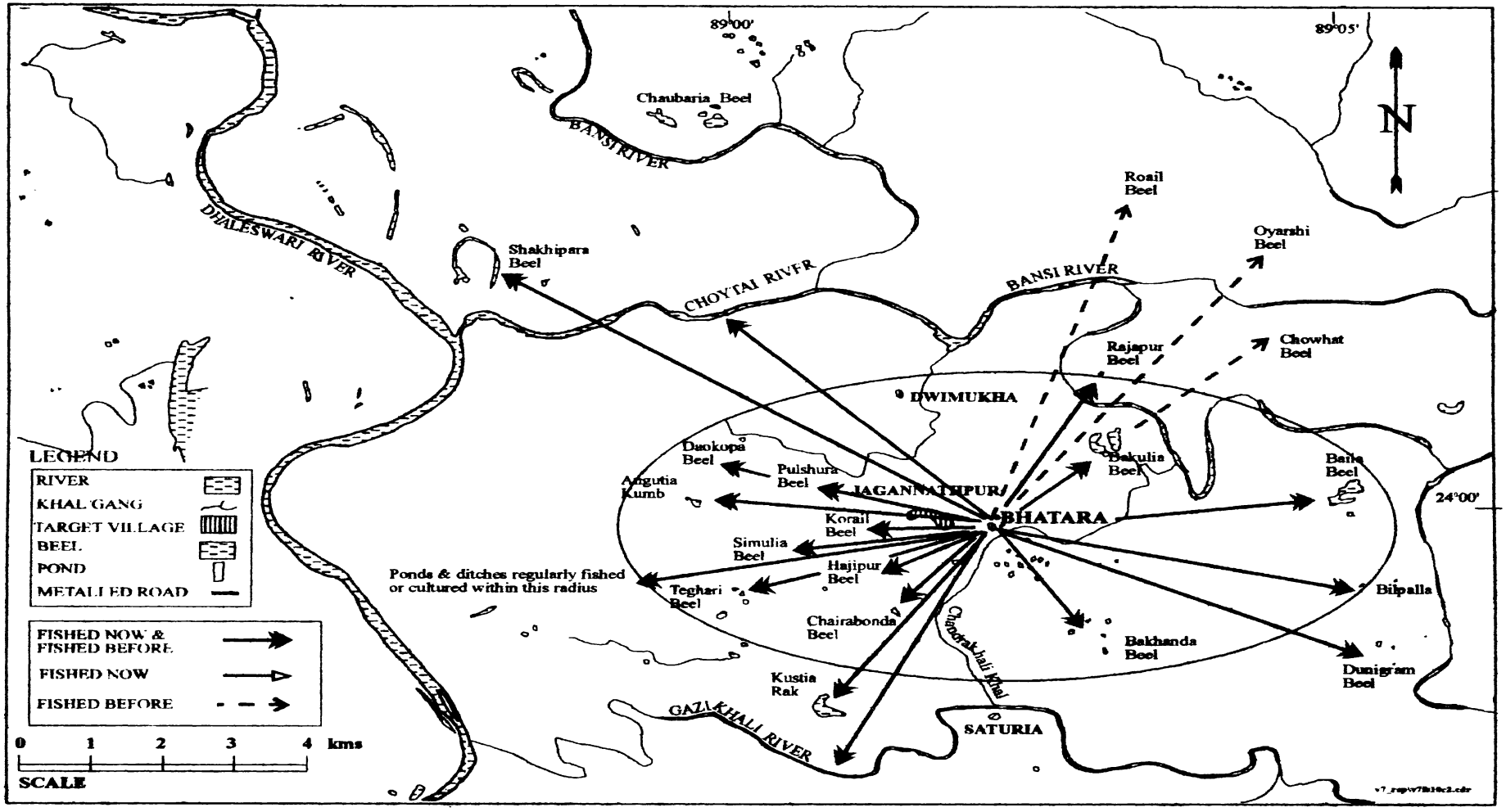
The second diagram illustrates long-term changes in patterns of fisheries exploitation for fishing communities in an area where some fishers have moved into fish culture as their options for exploiting capture fisheries have been reduced.

The basis for this map came from drawings on the ground showing the various water bodies in the area which fishers used to exploit and comparing it with those exploited at present. A similar diagram could be used to see how patterns of fish sale have changed and so give important indications regarding the local market for fish.

SEASONAL CALENDAR showing RELATIVE IMPORTANCE of DIFFERENT INCOME SOURCES through the YEAR



HISTORICAL DISTANCE CHART
showing PRINCIPAL WATERBODIES FISHED : PAST & PRESENT
and AREA of INVOLVEMENT in AQUACULTURE
BHATARA VILLAGE, BANGLADESH



COMMUNITY MEETINGS

"Meetings involving the community or target group as a whole as opposed to focus groups".

Key features :

- consensus building
- conflict resolution
- group discussion of issues, problems and appraisal findings

Main types :

- *Introductory meetings*

Communities can be called together at the beginning of an appraisal in order to explain the purpose of the RRA and elicit support and co-operation. Such meetings can be developed into exercises such as community mapping and group transect walks involving a cross-section of community members. In some cases such introductory meetings may be fundamental in order to put people at ease regarding the presence of strangers in the community.

- ***Community workshops*** :

Workshops held during the course of the RRA to analyse findings and review progress can, if appropriate, be expanded to involve members of the community or even the community as a whole. Care has to be taken regarding the expectations which such meetings can raise.

- ***Presentation of RRA findings***

At the end of an RRA, a community meeting can be called to present the RRA findings back to the community. This provides an opportunity for local people to cross-check the findings of the team and provide their own comments. Where follow-up action is envisaged, such meetings can be important in ensuring general consensus regarding problems and issues identified and action to be taken in the future.

Purpose :

- to elicit greater involvement of local people in appraisal
- to clarify purpose and objectives of appraisal
- to present findings of appraisal and elicit comments and corrections

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